when our science hats are on. Even philosophy, in the Western tradition, leaves revelation aside. A practical consideration is that debates of how God is likely to be motivated to intercede have tended to find little consensus or traction. Science gets some.

I tipped my hand on my own views in Chapter 1. As chairman of the Leakey Foundation for more than 40 years, I pretty clearly buy evolution theory and unguided natural casualty as working assumptions. But I invite those who don't to read further before deciding that we will disagree on conclusions. If I foresaw a conflict with the devout, which I don't, I would feel obligated to warn them now. I'll bring this up again as we go along.

My next few axioms, lumped together, are a mortal and reproducing population which competes, cooperates and freelances to act on convergent predictions. It acts to satisfy convergent tastes in a world of limited resources. I will model the population as human, although other species would do insofar as my axioms hold for them. "Convergent" means non-identical from individual to individual or place to place or moment to moment, but converging to norms with increasing scale in space and time. Predictions converge to outcomes as well as to one another.

The point is that tastes and predictions must be convergent enough for markets to form and hold. A market, as Becker knew, is where anyone makes any choice among alternatives. A literal market is where a choice leaves a quantitative record. Markets cannot form and hold if we cannot predict where to find them and what they supply and when they are open. They cannot form and hold without some consensus that what we predict they will offer includes something we want. Clothing stores can work because our sizes and shapes fall mostly within standard ranges. Their business would be in trouble if we did not agree in number and rough placement of arms and legs and head. Restaurants can work because we can find what we want on a finite menu. Most crucially, clothing stores and restaurants cannot hold unless there is consensus on what their wares are worth in return. All this convergence suggests a single species, although the axiom only said population. The ants and the picnickers can compete for the lunch, but they cannot bargain for it. The bar in Star Wars is a great gag because it thumbs its nose at this home truth. We converge in taste for the hilarious.

I will add the biological imperative as a separate axiom later, although much of that at least may be implicit in the first one of natural causality. We hate unnecessary axioms, from good Occamite principle, but we hate unsupported inference or question-begging worse.

I spell out the axiom of mortality and reproduction because I know I'm heading towards Petty's insight and next generation theory. Of course we design foundations to support what we want on top. It seems to me that my axioms mention nothing about rationality, whatever that might mean, except in the sense of assumed convergence of predictions to outcomes. And that assumption itself might not be critical. What seems critical that is the predictions should converge to a known function of outcomes. If they converge to something predictably overoptimistic or overpessimistic, we're still in business. Lacking even that, economic science is stillborn. We can't predict chaos.

That's an example of the principle that axioms need not be strictly true. They must be true enough. We're still in business if God intervenes a little here and there. Much more than that, and the convergent prediction axiom runs into the problem of predicting the mind of God.

The two convergence axioms, of tastes and predictions, are implicit in all microeconomics. "Micro", as economists call it, is about supply meeting demand at price equilibrium. This insight was the main theme of the marginalist revolution. It's exactly what can't happen without convergent tastes and predictions. It's exactly why the bar in Star Wars is a hoot. Ants find price equilibria in ant markets, and people in people markets. Ants and people find no meeting of the minds. Then if macroeconomics ("macro") rests on micro, the convergence axioms say only what economics has accepted implicitly since micro began. The "law of one price", meaning market equilibrium, actually begins a century and a half earlier with Cantillon. But Jevons, in co-founding the marginalist revolution in 1871, effectively made it an axiom.

I don't want to seem to claim that the convergence axioms are safe because they are accepted. Arguments *ad majoritatem* or *ad auctoritatem* prove nothing. But markets do seem to form and hold, and the convergences seem implied. Authority and majority are sometimes right.

Not all economists have agreed. There have been "historicists" and "institutionalists" who mistrust the idea of convergent tastes, and prefer to see idiosyncratic national tradition or power groups or mindsets as the prime movers in place of uniform human nature. Heinrich Schmoller, a historicist who stressed national differences, tangled with Carl Menger, an independent co-founder of the marginalist revolution in 1871, in a childish feud for which Menger was at least as much to blame. If you must answer your critics, be gracious. Thorstein Veblen, an institutionalist from Wisconsin, coined the term "neoclassicism" for what we now call marginalism. He made fun of it for missing the role of institutions in driving economies for institutional or collective goals rather than individual human ones.

I think there's something there. My main theme in this book is growth theory at the collective scale. I argue that collective growth flourishes where laws and practices and cultures nurture and protect it. These are national institutions. New ideas, by definition, are opposite from the fungible commodities for which supply and demand meet at price equilibria. Somehow they come. Dogs bark, cats climb, people innovate. I'm with Menger and Jevons and the marginalists and human nature, but with asterisks there too. There is plenty left for historicists and institutionalists to help explain.

Vocabulary and Catechism

The words microeconomics and macroeconomics, by the way, didn't exist until Ragnar Frisch coined them in the 1920s. We use terms retrospectively to describe old arguments in language familiar now. That segues into the next steps in the foundations. What should be the basic vocabulary and catechism, meaning basic logic, in terms understood today?

Consideration of purpose always comes first. The purpose of economics is prediction. We happen to know that one of the most powerful predictors of economic behavior is maximization of risk-adjusted return. This was Robert Turgot's insight of 1766, although he left the risk variable unsaid. (His real first name was somehow Anne, so we'll go with the second). He wrote that return equilibrates across markets as investors leave low-return businesses to crowd into higher-return ones. The shift bids up capital denominators in the higher-return businesses, and conversely, until return converges. It was David Ricardo, in 1817 who added that the convergence is more exactly for businesses judged equal in risk. The evidence is everywhere we look. I call this the maximand rule: all behavior maximizes perceived risk-adjusted rate of return. I'll show its proof below. That means all behavior in all markets, and markets are where any choice among alternatives is made. Return means ratio of (net) output to capital generating it. Then the vocabulary wanted might as well include capital and output.

But what is capital? Economics is choices, and the measure is price or value. Price can't be measured exactly outside literal markets, which is why economists follow those markets, but is measured in principle by what we give up in exchange. The price of any capital, even human capital, is given by the present value rule as time-discounted cash flow. Then cash flow and its positive and negative components belong to the basic vocabulary, while the present value and maximand rules both belong in the catechism. Output is total return, so the total return truism belongs in the catechism too.

What other basic terms do we need? Cash flow at the collective scale, where transfers cancel internally, and there is no source of investment from outside, simplifies to exhaust of value in taste satisfaction. There is no negative component because there is no external source of new investment. Tradition through most of economic history has called this exhaust consumption. Schultz recognized some consumption as investment in human capital, I said earlier, and limited the exhaust to "pure consumption". I will use this and the term "exhaust" interchangeably. Then transfer, consumption, exhaust and pure consumption belong in the vocabulary too. So does "invested consumption", my restatement of Schultz' "pure investment" in human capital.

This seems to be the right track. The object is prediction of behavior. The maximand rule predicts all behavior, and I have sought to build a vocabulary and catechism to clarify its terms. The right vocabulary, thank gosh, is mostly the one we have all used since Adam Smith or even Petty. It has needed only a little tweaking and clarification, as to the two kinds of capital and consumption for example.

There is a "fundamental theorem" of calculus showing how differentials and integrals fit together. Its proof takes a lot of thought. There is a simpler one for algebra. Might a fundamental theorem of economics be helpful? Obvious candidates would include the maximand rule predicting all behavior, the total return truism explaining the output numerator of the maximand (rate of return), and the present value rule explaining the capital denominator. For years I chose the maximand rule as the fundamental theorem. Then I preferred the present value rule as more fundamental since it explained the denominator. But so would be the total return truism in explaining the numerator. Now I opt for the judgment of Paris. Let the three together be the fundamental theorems of economics. The maximand rule is the centerpiece, and the other two define its terms. All three together are much easier to follow, mercifully, then the one of calculus.

The vocabulary can also include the standard distinction among stocks, flows and rates. These are only definitions, not assumptions. Stocks means value measured in money units, say dollars. This is not the same as stock in the sense of equity securities, although those can be examples. Flows means processes such as output for consumption measured in dollars per unit time. Flows are to stocks as verbs to nouns. Percent rates are flows divided by stocks, as rate of return or growth rate, and are measured in pure numbers over time such as 5% per year.

Now for the fundamental theorems. Take the present value rule first. It starts from the axiom that we satisfy convergent tastes in the light of convergent predictions. In a simple case, we foresee that an asset (stock) is likely to yield a certain amount of taste satisfaction flow at a certain future time. We discount that expected amount at a time preference or time discount rate given by our taste for impatience, tempered by our taste for risk avoidance, to find its present value. Present value of the whole asset is the sum of present values of all the expected future satisfactions together.

A more general case allows for transfers. The future events we foresee and discount are not always exhaust in taste satisfaction by ourselves at the time. Some might be foreseen liquidations to reinvest in other assets or to give away so that we or the donee can realize the taste satisfaction later. Either reinvestment or gift is called transfer. I call it "transfer out", meaning out from the generating asset. Then

$$\text{transfer out} = \text{reinvestment} + \text{gift}. \tag{3.1}$$

There can also be transfer in. Sometimes future realizations, in taste satisfaction or transfer out, are not explained as production by the asset as it is now. The asset might grow later by new investment from outside, and the investment in between might help explain the later yield. If an eighth-grader is destined to become a doctor, for example, her foreseen earnings as a doctor will presuppose investment in high school and college and med school in between.

The expected future flow we discount to present value, allowing for transfers too, is exhaust plus transfer out less transfer in. This net difference is called cash flow. That is,

$$\text{cash flow} = \text{exhaust} + \text{transfer out} - \text{transfer in}. \quad (3.2)$$

That's the logic behind the present value rule interpreting capital as discounted cash flow.

Human cash flow may not be defined in those words anywhere but in this book. But the flow discounted to find human capital is understood everywhere, I think, as pay less what Schultz called pure investment and I call invested consumption. I defended this idea in my analogy between human capital and the firm. Thus I endorse the tradition that human capital is pay less invested consumption discounted to present value. That is,

$$\text{human cash flow} = \text{pay} - \text{invested consumption}.$$

It turns out that this is not logical certitude, or an inference from axioms already given, and so it is not strictly part of the foundations. I will defend it in later chapters.

The great convenience of the present value rule and its application to human capital is that it allows the factors to be added as a dollar sum. That helps in understanding the total return rule.

That rule begins with the truism that growth of anything is internal creation plus flow passed in less flow passed out. That shows as

$$\text{growth} = \text{creation} + \text{flow passed out} - \text{flow passed in}. \quad (3.3)$$

Algebra now allows

creation = growth + flow passed out – flow passed in, (3.3a)

since terms can change sides if they reverse signs.

Economics is interested in creation and growth of value. Value in the stock sense means capital in general. Most economists most of the time use the word to mean only the "physical capital" we buy and sell. But the truism works for anything. I sometimes prefer the generality of "value", meaning any amount of any mix of human and physical capital. This again can be called either "total capital" or value interchangeably.

Flow of value passed out is exhaust plus transfer out, and flow passed in is transfer in. Creation of value is output in the net sense. Then (3.2) and (3.3a) give the total return rule

output = growth + cash flow. (3.3b)

"Income" means rights to output, and is implicitly equal to output. Like most writers in economics, I will use these words more or less interchangeably too.

Now comes the centerpiece. A good starting point is the present value rule. We assemble value or total capital to satisfy foreseen tastes. But we also satisfy current tastes by spending current cash flow. At the scale of the total capital (value) of the individual, were reinvestment cancels internally, cash flow simplifies to exhaust in taste satisfaction plus gift given less gift received. Then

individual cash flow = net gift + exhaust, (3.4)

where net gift means gift given less gift received.

Consider net gift. Its negative component, gift received, is concurrently added either into total capital growth or into exhaust. Thus it is the contribution to those two desiderata explained from outside, rather than by the individual's behavior. Net gift deducts that negative component (gift received) from the positive one to leave the part which the individual's behavior explains. Thus individual output, as the sum of growth and net gift, is the sum of desiderata realized by behavior. That makes it the unique behavioral maximand as a flow. Division by the individual's total capital, which is her whole means of behavior, gives total capital rate of return as the rate maximand.

This can be summarized in a slightly different way. Cash flow measures the means of taste satisfaction now. Total capital growth measures gain in means of expected satisfactions, discounted according to our taste for impatience (time preference) tempered by our taste for risk aversion. Output is their sum. Behavior reveals and maximizes the taste satisfaction including provision for future satisfaction. Therefore risk-adjusted output is the flow maximand. Capital of both factors, at present value, is defined as the whole means of that satisfaction, and implicitly of behavior. Therefore risk-adjusted return, the ratio of the flow maximand to its means, is the rate maximand.

What Turgot said in 1766, in his *Reflections*, was

> ". . . as soon as the profits of one employment of money. . . increase or diminish, capitals turn in that direction. . . or withdraw and turn to other employments. . . Whatever the manner in which money is employed, its product cannot increase or diminish without all the other employments experiencing a proportionate increase or diminution."

Turgot did not allow for risk in this quick summary, but otherwise explained the mechanics that tend to equalize return.

The rule does not say that risk-adjusted return tends to hold constant over time. To the contrary. Return equals growth plus cash flow, and my charts show the growth component as a bucking bronco. The maximand rule says only that risk-adjusted return is always the maximand. It is not always the same as time changes circumstances. Proof is in Turgot's equalization of return at each moment, not from one moment to the next. That is what we see wherever we look.

There is a quibble worth attention. Behavior seldom expresses taste exactly. We say one word when we mean another. We reach for the coffee, and accidentally spill it. That was the point of my axiom that predictions converge to outcomes, as well as to one another, only on average. Outcomes are generally a little better or a little worse than predicted. There can even be systematic bias where all people together seem overoptimistic or overpessimistic accordingly to circumstances, as shown in the psychological economics of Hanneman and Tversky. The axiom requires that these biases offset over scale and time. That sounds plausible, and anyhow makes analysis easier.

The maximand rule would be ridiculous if terms were defined in a literal market context only. Markets must be defined as wherever any choice is made. It would be ridiculous if cash flow were understood to presuppose literal cash, or even the necessity of some *quid pro quo* to explain motivations. Unreciprocated gift down the generations drives lineage survival.

All behavior means all behavior. The miser maximizes the growth component in return, the parent or philanthropist maximizes the net gift component, and the good-time Charlie maximizes exhaust.

Have I gone too far in this claim? Try to imagine an exception. What kind of behavior might not maximize perceived risk-adjusted return? What if I jump out the window? Deliberately drive my car into a tree? Sell a cow for a handful of beans? Maximize a pile of nuclear waste in my safe instead of cash and securities? Drive a truck filled with dynamite into a crowd of unbelievers? Write a book on economics when I have no credentials? Sing when I have an atrocious voice? All express my tastes. There is no escape. Behavior reveals taste satisfaction in the broad sense including provision for future satisfactions.

Tastes, Aims and Ends

I usually mean the word "tastes" as objectives whose satisfaction exhausts capital value. By that usage, as we just saw, the truism that behavior reveals tastes must be interpreted carefully. We see current taste satisfaction at mealtimes. Between meals, we mostly see buildup of capital to satisfy tastes in future. And we sometimes are motivated to give capital away, as in raising the generation to succeed us. I sometimes use the term "aims" to mean the sum of this exhaust plus gift plus buildup. Then to say that output realizes growth plus cash flow is to say that it realizes aims. All behavior reveals and maximizes aims explained by ends. This again puts the maximand rule in a different way.

As capital of both factors is our whole means of behavior, and as it is present value of foreseen taste satisfaction and nothing else, we might first suppose that taste satisfaction is our unique *final* goal. But that too could mislead. Biology shapes our tastes, and shapes them to replicate the generations. I treat the biological imperative as the "ends" driving tastes and aims. Our two complementary ends are adult survival and replication of both factors for survival of the young. This idea underlies next generation theory.

What we maximize is risk-adjusted present value of current plus foreseen taste satisfactions by ourselves plus donees. Current taste satisfaction or exhaust by ourselves is counted at full value, and foreseen ones are added at a time discount. Transfer is part of the mechanics. The exhaust plus growth plus gift are the aims, in whatever proportion we like, and our subliminal deeper motive of lineage survival is the ends.

Subjective Certitude

Tautologies or truisms are logical certitudes. My three fundamental theorems are cases in point. The total return truism is a classical example. Since growth is creation less net outflow, creation is growth *plus* net outflow. This gives unqualified certitude to the doctrine that output, or creation of value, is growth of value plus cash flow (net outflow of value).

The other two fundamental theorems are certitudes in a subjective sense. What they predict infallibly is intentions. The present value rule must give capital value as we see it individually. Only under the convergence axioms does it predict observed market equilibria. The same is true of the maximand rule. This rested on the same axioms and the one that a population acts to satisfy tastes (in the sense of aims).

There are schools of thought, including Popperians and deconstructionists, which disapprove of logical certitude on grounds not clear to me. They are wrong. A rose *is* a rose. Nor are all examples as inane as that one from Gertrude Stein. All of math is derived as logical certitude. Its proof comes from analysis, not experiment. Proof of Fermat's last theorem eluded some of the finest minds in the world for three centuries until Andrew Wiles published the solution in 1995. Philosophy is precisely a search for hidden truisms or tautologies. Economics is philosophy when it does the same. The pay rule shows that their inferences can be startling. Age-wage profiles are technically illustration, not proof, of the proposition that human depreciation is *expected* to be recovered in pay. That follows from definitions and needs no evidence in proof.

The pay rule is not wholly logical certitude because it also proposes that maintenance consumption is *not* recovered in pay. Rather I argue that from the biological imperative: maintenance is exhausted in satisfying our taste for adult survival. The fact that few can have doubted this since the physiocrats has nothing to do with proof. The shock, anyhow, is in the expected recovery of human depreciation. This opened a can worms. It contradicts the Y = C + I equation, and the related belief that output equals profit plus pay. I will try to track down some of the worms, as I promised, and release new ones in the process if I must.

This book will continue to hunt for certitude, absolute when possible and subjective otherwise. If the convergence axioms are trustworthy, behavior will reveal aims well enough.

Output Exhaust

I define output as creation of value, and equivalently of capital. Does this overlook the possibility that output might also create taste-satisfying pure consumption directly, without passing through a capital phase first?

Such a thing is possible in math, but not in economics. Since capital is foreseen eventual exhaust, exhaust not drawn from capital in place would be implicitly unforeseen. This is the flip side of the deadweight loss rule. Economics is a rationale of choices, and neglects unforeseen taste satisfaction as unable to influences choices.

Those unforeseen and hence costless satisfactions are called "free goods", and ignored as outside the economic purview. They why not ignore free growth too? Growth is roughly foreseen and factored into choices, for one thing, even if I am the first since Mill to foresee it as free. For another, even unforeseen events are of economic interest if they affect means or choices *after*. Free growth does. Costless satisfactions leave no trace.

Note in any case that the total return truism (3.2) through (3.3b) does not depend on this inference. Those equations describe creation of value, not necessarily of capital alone. Output exhaust would be added both to output and to exhaust, and would disappear in their difference.

Basic Glossary

I use standard terms when I can find them, and coin new ones like “aims” and “ends” when I can’t. But even standard ones are ambiguous. The vocabulary of economics is not settled. Look up “capital” or “output” or “cash flow”, for example, in any economic dictionary. It will show ranges of meanings, and appreciably different ones from one dictionary to the next. I coped by defining as I went along, and would have had to do the same even if this book were meant for economists only. Otherwise the ambiguities would have left loopholes.

Definitions include:

Aims:	Intention to maximize the sum of current taste satisfactions plus gift, plus growth in means of future satisfactions and gift.
Capital:	Means of aims; human plus physical capital; present value of expected cash flows.
Cash flow:	Capital passed out, in transfer or exhaust, less capital inserted from outside.
Ends:	Rationale of aims; biological imperative.
Exhaust:	Termination of capital in taste satisfaction.
Flow:	Any process measured in capital per unit time.
Human capital:	Present value of skill sets; capital whose outside operating cost is exhausted in taste satisfaction; present value of pay less invested consumption; present cost of past invested consumption less pay.
Income:	Rights to output; equal to output.
Invested consumption:	Transfer into value of human capital.
Maximand rule:	All behavior is maximization of perceived risk-adjusted output and return as a flow and a rate respectively.
Net transfer:	Transfer out less transfer in.

Output:	Creation of wealth, or equivalently of capital of either factor.
Physical capital:	Capital whose outside operating cost does not satisfy tastes.
Present value rule:	Capital of either value is expected cash flow discounted at our time preference rate.
Profit:	Output of physical capital.
Pure consumption:	Same as exhaust.
Rate:	Quantity measured as a flow over a stock, and equivalently as a pure number over time.
Stock:	Quantity measured in dollars alone. Same as capital.
Tastes:	Intentions whose satisfaction terminates capital in exhaust.
Total return rule (or total return truism):	Output equals capital growth plus cash flow.
Transfer in:	Value inserted from outside. Same as new investment from outside.
Transfer out:	Value passed out and recovered fully in other assets rather than exhausted.
Wage:	Same as pay.
Work:	Output of human capital.

Summary

When I first thought these foundations through, maybe 25 years ago, I was just as happy to see that they held so little originality. The vocabulary is about the same as in Adam Smith, and the three fundamental theorems are well accepted. Any composer knows that originality should be incidental. Our music says what we think needs saying. If it does, that tends to mean that it is new to the current conversation. It need not be new to the world.

All three fundamental theorems are part of the daily conversation of investors and finance economists. They are not much on the screens of microeconomists and macroeconomists. There may have been some originality in spelling out the implicit axioms behind them, and in generalizing them into all capital including human capital if we trust those axioms.

One of the mini-surprises was that gift appeared in my very first equation. Cash flow at the scale of the total capital of the individual, where reinvestment cancels out, simplifies to gift and exhaust alone. Obvious in hindsight, but surprising if we have been taught that economics is all about *numero uno*. I think it is about adults giving to the young to keep the generations turning.

That sets the theme of this book. Old ideas will find unfamiliar combinations and applications. Those are originality enough. But so many little stretches of the tried and true can be hard to track.

Economics needs a special and counterintuitive mindset. The guiding principle is the analysis of the diamond ring. Economics means taking our minds off the physical substrate. That goes to the corners of our eyes, not the focus. Capital is not people and things. It is present value of foreseen cash flows. Output is the ripening of these foreseen flows with time, and exhaust is the harvest eventually reaped. Economics takes us through the looking glass to a place the same but different.

CHAPTER 4: MILL'S IDEA

Mill's Paragraph

It always seemed obvious to me that growth is free. Survival costs investment in the next generation, but growth costs nothing more. It seemed to me that innovation is the human specialty, that we pay its cost every day as the cost of being human, and that growth happens when genius or circumstance somehow gives it traction. I spent most of my life assuming that all economists, but not politicians, thought the same. I since learned that economists, following Solow, teach something close but different. So I guessed that I had hit on something new.

I hadn't. We read economic history to learn that our ideas are seldom original. Thomas Malthus, contradicting his friend and rival David Ricardo, wrote something like my or Mill's free growth theory in 1820. Chapter 7 of his *Principles*[1] says this in several ways. One example is

> "When we have attained…increased and steady profits, we may then begin to accumulate, and our accumulation will then be effectual. But if, instead of saving from increased profits, we save from diminished expenditure; if, at the very time that supply of commodities compared with the demand for them, clearly admonishes us that the proportion of capital to revenue is already too great, we go on saving to add still further of our capital, all general principles concur in showing that we must of necessity be aggravating instead of alleviating our distresses."

John Rae renewed this theme in 1834. Book 1, Chapter 10 of his *New Principles*[2] includes

> "If an improvement, for instance, in the art of baking bread were effected, by which, with half the labor and fuel, equally good bread could be produced, it would not benefit the bakers exclusively, but would be felt equally over the whole society. The bakers would have a small additional profit, the whole society would have bread for the product of somewhat less labor, and all who

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[1] *Principles of Political Economy Considered with a View to their Practical Applications*

[2] *Statement of some New Principles on the Subject of Political Economy*

> consumed bread, that is, every member of society, would from the same outlay have somewhat larger returns. The whole series of instruments owned by the society would be somewhat more productive, and would be carried to an order of quicker returns."

The clearest expression, and probably clearest even today, came from Mill in 1848. He put it that output growth can precede and explain capital growth as well as the reverse. Crediting Rae, he wrote:

> There are other cases in which the term saving, with the associations usually belonging to it, does not exactly fit the operation by which capital is increased. If it were said, for instance, that the only way to accelerate the increase of capital is by increase of saving, the idea would probably be suggested of greater abstinence, and increased privation. But it is obvious that whatever increases the productive power of labor creates an additional fund to make savings from, and enables capital to be enlarged not only without additional privation, but concurrently with an increase of personal consumption. Nevertheless, there is here an increase of saving, in the scientific sense. Though there is more consumed, there is also more spared. There is a greater excess of production over consumption. It is consistent with correctness to call this a greater saving. Though the term is not unobjectionable, there is no other which is not liable to as great objections. To consume less than is produced, is saving; and that is the process by which capital is increased; not necessarily by consuming less, absolutely. We must not allow ourselves to be so much the slaves of words, as to be unable to use the word saving in this sense, without being in danger of forgetting that to increase capital there is another way besides consuming less, namely, to produce more.

The words "accelerate" and "concurrently" show that Mill understood calculus. His autobiography says that he hadn't really learned it from his father James, who had bought a book and was trying to teach himself and the 13-year old son at the same time. The son studied it in his later teens at school in France. He like me was writing for everyone, and preferred to keep explicit math off the page. But the quote reminds us that the only alternative in economics is implicit math in sentence form. The paragraph implies the Y = C + I equation: output equals consumption plus investment. I go a tad farther, starting one chapter ago, by offsetting my word equations from the running text. These show equal signs and plus and minus and division and multiplication signs, rather than keeping them inside the paragraph and writing out such words as “equals” and “plus”. These word equations are usually easy enough to read. My appendix will cover them and more in notation.

Mill’s equation may be as old as economics, although I haven’t found it put explicitly before Keynes wrote it in his *General Theory* 1936. It is now foundational to national accounts and macroeconomics (the art of balancing full employment with price stability). I showed why I agree only if we add a couple of imaginary asterisks. We have to mean total capital growth and pure consumption. Mill and tradition have meant physical capital and all consumption.

That leaves me with something like the heuristic problem of Halliday and Resnick. They started with Newton as something familiar and accessible and common-sensical. I will follow suit. I will reason as if Mill’s equation were right. My own argument is exactly the same if we remember the hidden asterisks. That saves us all the trouble of going through it twice. Chapter 4 will restate it in terms of total including human capital just to make sure.

It is an unsettling argument either way. It unsettled Solow. Chapter 2 showed why. We are probably more comfortable to think of income as something known which we can slice into consumption and saving slices as we like. Less of one would mean that much more of the other. That would put us in charge. We can always consume less by will power. If less consumption meant more growth, we could grow at will.

Keynes showed otherwise by invoking the old paradox of thrift. If everyone put money in vaults instead of consuming, consumption would go down while money piled up. But the added money would find less output to buy with it, as nothing new was created to compensate for the drop in consumption. The value of the piled-up money would vanish in inflation. Saving would equal investment in the end because both disappeared. The $Y = C + I$ equation shows the math. It say that less consumption C means either more investment I or less output Y. It doesn't say which happens.

Investment, for Keynes, meant creation of new productive assets. He was right in seeing that as the goal. But his analysis leaves too much outside. What I miss is a variable for investment quality. Investments in new productive assets in 1929 or 2008 yielded negative return. Money in vaults did better.

I prefer an approach which takes our minds off the ultimate goal in new productive assets. I drop all distinctions between saving and investment. Either word means the other. What matters is its intended and realized return. That is the missing quality variable. Notice that I don't have to specify "risk-adjusted" return because Keynes and I are describing only at the collective (national) scale. Risk of all investments collectively is average risk. This can be implicit whenever I describe at the collective scale.

Keynes' analysis and equations appear in his *General Theory*. He was addressing the world depression. A theme was that households do most saving, while businesses do most investing. Banks collected the saving and made it available for business to borrow and invest. But business lacked the "animal spirits" to take such a risk in a slump. We saw the same story after 2008. Keynes' proposal was for government to do the borrowing and investing instead. That's part of the "fiscal policy" I described in Chapter 1. Here we tend to agree. That would explain his sense of urgency as to new productive capital as the most direct way to put idle plant and workers back to work.

I prefer to suspend judgment on what is a new productive asset and what isn't. I think my way of putting things is both simpler and subtler than Keynes', although at sacrifice of his explicit focus. Saving and investment, in my language, are the same from the start. The maximand is return. Consumption foregone will translate into capital growth insofar as rate of return actually realized matches the current norm. Less return makes less growth than consumption sacrificed, and more makes more.

But collective return can be a surprise. Boom years and bust years arrive unforeseen. The cost of investment in consumption given up, whether individually or collectively, never agrees exactly with what it proves to be worth at market. Gunnar Myrdal, in 1939, coined the terms *ex ante* for the first and *ex post* for the second. The bucking bronco describes the *ex post* picture overall.

Ex ante (at cost) and *ex post* (at market) investment agree when market-realized return holds unchanged. Lower return means that *ex post* outcomes fell short of *ex ante* cost and expectations. Higher return means the reverse. That gives the context of Mill's idea. And he clearly isn't talking about growing or declining by random luck. His prime mover is "whatever increase the productive power of labor." He knew that this meant innovative ideas. Can we dial them in as we like? All he says is that they need cost nothing in consumption missed. Then how might that work?

Gross and Net Investment

Keynes, accepting the Y = I + C equation, defined saving S as gross income less consumption C. I draw the impression that he implicitly defined output as creation of economic value. So do I. He defined gross investment I as gross output less consumption. Gross in both cases meant gross of depreciation. He knew that income and output are equal, at all scales, since the first means rights to the second, and gave both the symbol Y as I do. It followed that saving and investment are also equal. The meaning was that actually realized saving, as distinct from consumption restraint in hopes of saving, had to be realized in investment. This is the home truth which I accept but prefer to rephrase.

I have traced Keynes' argument and language on these points because I think it is now generally accepted by Keynesian and anti-Keynesian and neo-Keynesian schools alike. That's why I think my own interpretation differs from a general consensus rather than supports one school over another. I think it is the consensus view, as well as Keynes', that his "attempted saving" means gross saving (gross income less consumption) not invested in new productive assets. That can be written as

Keynesian attempted saving – transfer payments
= Keynesian net saving = Keynesian net investment,

at any scale.

I accept Keynes' definition of transfer payments, and I recognize the importance of his distinction of those from investment in new productive assets which put idle plant and workers to work. My interpretation, even so, is that it is better to leave them idle than to put them to work unproductively. Keynes made his opposite view crystal-clear with his brilliant tongue-in-cheek parable of money buried in mineshafts and idle workers hired to dig it up. He had a sense of theater as well as a great mind. And he just might have been right. But I think my way of putting things encompasses that possibility. His mineshaft scenario works if it somehow maximizes return in the big picture.

My language differs from Keynes' in several ways. I prefer Myrdal's *ex ante – ex post* dichotomy, published three years after the *General Theory*, to Keynes' equivalent attempted-realized one. Like Myrdal, and unlike Keynes, I apply it to investment as well as saving. That's why I treat them as synonymous. And I prefer to recognize human capital explicitly. Keynes surely understood the concept. He was the star pupil of Alfred Marshall's later teaching career, unless he shared that distinction with his lifelong personal friend and professional adversary Arthur Pigou, and Marshall and Pigou both describe human capital in principle. Marshall wrote that he neglected it as something outside what he saw as the main sequence ending with consumption. Keynes could have agreed, or could have meant to provide for it implicitly by defining output as investment plus consumption while realizing that some consumption is investment in human capital. I said what I think this overlooks (self-invested work) and what it forgets to exclude (recovered human depreciation).

My own way of putting things mightn't strictly need the terms investment or saving except to translate my ideas into the language we all know. That translation is essential if I hope to be understood. It will first take account of the fact that Keynes meant investment and saving as to physical capital only, with labor or human capital to arrive exogenously as an outcome somehow of consumption. That led to the $Y = I + C$ equation

$$\text{output} = \text{investment} + \text{consumption}. \tag{4.1}$$

Gross and net versions of (4.1) meant gross and net of depreciation. Thus

$$\text{gross output} = \text{gross investment} + \text{consumption} \tag{4.1a}$$

and

$$\text{net output} = \text{net investment} + \text{consumption}. \tag{4.1b}$$

In the *General Theory*, where (4.1) appears in his Chapter 6, (4.1) it means the gross version unless otherwise specified. I prefer the opposite, and mean the net version (4.1b) unless otherwise specified.

My *ex ante* investment corresponds to Keynes' "intended saving" through consumption restraint. My "depreciation investment", or "depreciation plowback", means just enough *ex ante* investment to offset actual depreciation, not book depreciation, of physical capital. I assume that we intuit roughly how much this is when I say that optimum *ex ante* investment is depreciation plowback. Now let's consider how that could be true.

Growth Mechanics

Start with simplicity. Imagine a changeless world where people and things replicate themselves exactly. Chapter 3 showed that in total capital terms including human capital, although neither Mill nor Keynes used them, depreciation of both factors together, net of transfers from one to the other, equals exhaust in taste satisfaction. "Replacement investment," or "depreciation investment," is just enough to turn the generations over as new (net) output makes up the loss to consumption exactly. Ideas hold unchanged. That wouldn't be too far from the truth for our million years as *homo erectus*, or our millennia after as *homo sapiens* until some 50,000 years ago, or our centuries in the dark ages after Rome fell. Most of the new norms we innovated, although not all, eventually regressed to the old ones.

Next imagine growth of everything at a constant rate. Capital, consumption and output all grow in constant proportion. Economists now call this "balanced" growth. Mill had described that possibility in 1844. Balanced growth isn't driven by consumption restraint, as consumption never lags. And it isn't driven by productivity gain, meaning more output per unit capital, since output grows no faster. What drives it?

Suppose first that there are still no new ideas. If we are pioneers in a new world or empty niche, we might be able to increase numbers of exactly the same things and skill sets until we reach niche limits. Then what would pay for capital growth in that case? Zeno the Eleatic might insist that depreciation investment is never enough because it chases a moving target. But depreciation moves just as fast. Identical capital means identical in depreciation rates. That means the ratio of depreciation (pure consumption) to capital. The two racers hold neck and neck indefinitely. Depreciation investment is still enough, just as it was in the growthlessness before. In balanced growth, as in standing still, it is the only need for of capital replacement.

Now comes a tougher problem. Niches in the real world are typically more or less full. Here old ideas alone can't bring growth. David Ricardo, Thomas Malthus and

Edward West had written in 1815 that in economies already developed, there isn't much room for more capital of the same kind. Its productivity disappears in capital glut and diminishing returns. There could still be growth when some of the new ideas would need only redeployment of existing kinds of capital, as in relocating production nearer to the market or cutting out the middleman. This redeployment was Solow's "disembodied growth." But growth after that have to come from capital new in kind. Hourglasses might have to give place to pocket watches, or sailing ships to steamships. Those were Solow's "embodied" growth.

The apparent problem here is that novelty is expensive. There are blind alleys and failure rates and learning curves that rote replication avoids. This is true somewhat even in disembodied growth, where redeployment is already a step into the unfamiliar. If depreciation investment is barely enough for balanced growth without new ideas, how can it also pay for the failure rates and learning curves?

A tough question. And Mill was posing an even tougher one. The paragraph quoted is clearly describing capital acceleration. Capital as he describes it is not only innovating consistently as it keeps up with consumption, but picking up the pace, and still taking the innovation costs in stride. Is that too much even for Achilles?

It is not. Charts and tables show that the kind of growth Mill describes has proved the only kind in every country and period where tests are practical. It has proved the only kind whether capital was growing faster or shrinking faster or anything between. The growth bronco bucks, and the consumption rider stays on. This is what clearly happens, or anyhow has happened so far, despite so many reasons to think it is impossible. What would explain it?

First take the lesser puzzle. Balanced growth, where capital, output and consumption all grow at the same constant rate, must make do with depreciation investment. How can it in crowded niches where growth compels the costs of innovation? Chapter 2 showed my inference that these are the costs of being human.

We were paying them as *homo habilis* two million years ago. The cost went up, but the value of innovation just as much, when *homo erectus* arrived a little later. Both rose again with the emergence of Ancestral Eve 200,000 years ago. Adaptation is the human specialty. Its what gets us through the day. Innovation is adaptation that happens to become new norms. It started leaving a record of embodied growth about 50,000 years ago. That doubled pace about 400 years ago. The costs of being human are the same failure rates and learning curves whether the payoff in adaptation/innovation means faster gain in good times or slower decline in bad ones. We row at a steady stroke, and gain against the shoreline when our new ideas are particularly good ones and the current is right.

My idea, whether or not Mill's, is that these costs might be about the same for breakthroughs or meta-ideas or paradigm shifts as for modest upgrades, or even for holding even in a world of daily surprises. Ideas trade in an inefficient market. Cost is dissociated from value, and cause is desynchronized from effect, by the vagaries of genius and the whim of circumstance.

Now the tougher puzzle. How can consumption keep up with capital even in accelerations? That's what Mill described, and that's what happens. Can Achilles catch the tortoise even when the tortoise speeds up? Put your money on Achilles. Here it is Gunnar Myradal to the rescue. The apparent problem is that *ex ante* depreciation investment is never enough in acceleration. But the charts and tables show unanswerably that *ex post* depreciation investment is. We sow the first, but reap the second. Plowback of depreciation investment is up to us. Growth is whatever is added by genius or happenstance. The difference between market value and cost is sometimes luck, which neither loses nor gains in the long run, but sometimes imagination. Mother Nature and Gunnar Myrdal simultaneously say "Shazam", and convert new ideas into embodied or disembodied growth without surcharge for the novelty.

That still leaves the mystery only half solved. How exogenous (sourced from outside) are the genius and happenstance? Can we coax them along by policy? That isn't really my field. What seems reasonably clear is that growth flourishes in secular free markets with solid infrastructure and rule of law. How to get *those* things is the problem. I will suggest that the answers, whatever they are, will be developed outside the usual marginalist perspective of supply and demand.

The Free Growth Equations

Now back to Mill's argument. Notice first that he puts it all in the present tense. Modern growth economists have preferred what I called the lagged flows method: spikes in investment are compared to later ones in output. Mill here is substituting what I called a concurrent rates method: he compares changes in consumption rate to changes in capital growth rate at the same time. He writes that "whatever increases the productive power of labor … enables capital to be enlarged … concurrently with an increase of personal consumption."

Let's follow that. Mill's root assumption is the Y = I + C equation in its net form (4.1b). Put the *ex post* version as

$$\text{output} = \text{growth} + \text{consumption}, \qquad (4.2)$$

meaning net output, growth of physical capital and all consumption. The Y rule says the same with the hidden asterisks after growth and consumption. So it will continue for the rest of this discussion. (4.2) shows that less consumption implies more growth, or less output, or some of both. Mill was asking which. To show how to find out, first arrange (4.2) as

$$\text{growth} = \text{output} - \text{consumption}, \qquad (4.2a)$$

again because terms can change sides if they change signs.

Mill and Keynes and tradition hold (4.2) and (4.2a) as logical certitudes which hold constant over time. I agree if we imagine the asterisks. Constancy over time would imply

$$\text{change in growth} = \text{change in output} - \text{change in consumption}. \qquad (4.3)$$

I take the trouble to derive this as a road I haven't preferred to follow. I will reason instead in rates rather than flows. Rates, or ratios of flows to capital, effectively cancel capital from numerator and denominator. That frees them to show comparison between smaller and larger economies among the eight I test. Mill's idea, or anyhow mine, is that the *ratio* of consumption to capital in all those countries can hold constant. That is what the charts and tables show.

To follow that lead, divide (4.2a) by capital. This finds

$$\frac{\text{growth}}{\text{capital}} = \frac{\text{output}}{\text{capital}} - \frac{\text{consumption}}{\text{capital}}. \qquad (4.4)$$

That can be put more compactly as

$$\text{growth rate} = \text{capital productivity} - \text{consumption rate}, \qquad (4.4a)$$

where rate always means ratio to capital. That needs a caveat because consumption rate in macro means ratio to output. Capital productivity in this sense is also called rate of return.

For more compactness still, define

$$\text{thrift rate} = -\text{consumption rate},$$

allowing (4.4a) to be restated as

growth rate = capital productivity + thrift rate. (4.4b)

Notice that we must change the sign before "consumption rate" to find thrift. Change downward in consumption rate is change upward in thrift rate, and conversely.

Further

change in growth rate = change in capital productivity
− change in consumption rate, (4.5)

by the same logic as with (4.3). Save space again by reexpressing (4.5) as

acceleration = productivity gain + thrift gain. (4.5a)

Finally divide by acceleration to reach

$$1 = \frac{\text{productivity gain}}{\text{acceleration}} + \frac{\text{thrift gain}}{\text{acceleration}}, \qquad (4.6)$$

if acceleration is nonzero. Reexpress as

1 = free growth index + thrift index, (4.6a)

where indexes are undefined if acceleration is zero.

I think this gets at what Mill meant, and anyhow what I mean. We both describe acceleration as well as growth. One night think that his "whatever increases the productive power of labor" is the opposite from my "change in capital productivity." But they are about the same. Better machines make their operators more productive whether skills have changed or not.

(4.5) shows something about "balance" or the state where capital, consumption and output grow at the same rate. It confirms the standard teaching that balance is possible, although not compelled, when growth rate is constant. It also shows that balance is impossible when growth rate changes. No one disputes that capital productivity (output/capital) always leads, and consumption rate (consumption/capital) always lags, in accelerations up and down. Output gets the bad news first and the good news first. What the equations leave unspecified is where capital itself joins the sequence. That is what the evidence in the charts and tables tells us.

In the case where the free growth index equals one, for example, the above equations show

$$\text{thrift index} = \frac{\text{thrift gain}}{\text{acceleration}} = 0, \quad \text{implying}$$

$$\text{thrift gain} = \frac{-\text{ change in consumption rate}}{\text{change in growth rate}} = 0, \quad \text{and}$$

$$\text{change in consumption rate} = 0, \quad \text{or equivalently}$$

$$\text{consumption rate} = \frac{\text{consumption}}{\text{capital}} = \text{constant}, \tag{4.7}$$

if acceleration is non-zero. (The reason for that qualifier is that zero acceleration means zero change in growth rate, and division by zero is a no-no.)

In the opposite case where the thrift index is one, the same equations would show

$$\text{free growth index} = \frac{\text{productivity gain}}{\text{acceleration}} = \frac{\text{change in productivty rate}}{\text{change in growth rate}} = 0,$$

implying

$$\text{productivity rate} = \frac{\text{output}}{\text{capital}} = \text{constant}, \qquad (4.7a)$$

assuming again that acceleration is nonzero.

This shows how to find the position of capital in the sequence led by output, and how to test between free growth and thrift theories. The market-valued capital denominator in (4.7) and (4.7a), and the consumption numerator in (4.7), can be taken directly from national accounts data collected at the Piketty-Zucman website. The output numerator in (4.7a) can be constructed as consumption plus current change in market-valued capital. By (4.7), free growth theory (Mill's idea) predicts a roughly constant consumption/capital ratio, even in accelerations and decelerations and reversals. Then capital acceleration would lag alongside consumption acceleration while output led alone. Thrift theory makes the opposite prediction of a roughly constant output/capital ratio, so that output and capital would lead together while consumption lagged alone. There is no need to measure and test both indexes, as either is defined as one less the other. My charts and tables track the free growth index. They confirm free growth theory in all countries and periods.

Defining Free Growth and Thrift

(4.2) through (4.7a) defined the free growth and thrift indexes, but not free growth or thrift themselves as flows. Since I will use those terms often, I'd better clear that up now. Define

free acceleration = productivity gain = gain in rate of return, and
thrift acceleration = thrift gain = drop in cash flow rate,

so that those sets of terms become interchangeable. Then (4.5a) can be put as acceleration = free acceleration + thrift acceleration. (4.5b)

Rates are flows divided by capital expressing them. Then define the two flows as

free growth = capital ∗ free acceleration, and (4.8)
thrift = capital ∗ thrift acceleration, giving (4.9)
growth = free growth + thrift. (4.10)

These equations apply equally in continuous or discrete-period time. In the latter, they leave the periods of acceleration and growth unspecified. Marginal or current free growth, as with the speed of a car, is the sum of free accelerations since some past origin when growth was zero. So it is with current thrift. That need not place the origin with Ancestral Eve. Surprising as it might seem in the growth age, zero points appear to recur every few minutes at the longest. Online stock index numbers reverse direction at least that often. They pass through zero each time. Debt claims on the corporate sector figure to be less volatile, but equity (stock) ones outweigh them. Then marginal free growth means accumulated free acceleration, or rise in rate of return, since the last zero growth point no more than a few minutes ago when return and cash flow were equal. Growth is free whenever cash flow rate rises or holds steady.

The Charts and Tables

Mill lacked data to test whether growth tends to lead with output when it changes, or to lag with consumption, or something else. So did all economists until national accounts began reporting market-valued capital in 1990 or so, and reconstructing it backward over a few decades before. The equations through (4.7) show how to test from data in the Piketty-Zucman and *Global Financial Data* websites.

First I downloaded the Piketty-Zucman data for market-valued capital and consumption for all countries and periods. I chose their "private wealth" data for the former. I neglected "government wealth" net of national debt, which is small and often negative, as I don't feel that I understand it well enough. I took consumption as the sum of personal consumption expenditure (PCE) and government consumption expenditure (GCE). I also downloaded real stock market rates of growth, dividends and return from the *Global Financial Data* website for the same years and countries.

Yearly change in capital in each country gave each year's capital growth as a flow. I added this to consumption to give what I call market-valued output. I said earlier that Piketty and Zucman should logically have done the same. This gave the values for (4.1) and (4.1a).

I then divided by year-end capital to give values for (4.3). I next found annual changes in those three to give acceleration, productivity gain and thrift gain as shown in (4.5) and (4.5a), and divided by acceleration to find the two indexes of (4.6) and (4.6a).

The test from *Global Financial Data* took fewer steps. Stock market growth rate, rate of return and dividend rate were downloaded directly. I took them as corresponding respectively to growth rate, capital productivity and consumption rate in (3.3a). I found their annual changes to find values for (3.4a), and again divided by acceleration to reach (3.5a).

This allows tests of Mill's idea from national accounts data for all eight nations reported at the Piketty-Zucman website, and over their entire reporting periods through 2010. (The website also reports for Spain, but only since 1993 and without data for consumption.) In each year, for each country, change in capital growth rate is compared to change in consumption rate (consumption/capital). If consumption rate grows faster than capital growth rate while both grow, or declines faster if both decline, the free growth index in that year is greater than one. If they change at the same rate in the same direction it is one exactly. If both change in the same direction, but consumption changes less, the free growth index is between zero and one. If either grows while the other declines, the index is zero or less; zero if one grew as much as the other declined, and less if the change in capital growth rate was larger than the opposite one in consumption rate.

Interpreting the Charts and Tables

Now look again at the charts captioned "free growth index" in the appendix. I will summarize them and all other charts and tables only briefly here, and save most description for there. They cover all eight countries. Each chart covering free growth tracks three separate versions of the free growth index labeled $\varphi(K)$, $\varphi(K_T)$ and $\varphi(SM)$. The one I have discussed so far is $\varphi(K)$. $\varphi(K_T)$ is a version including human capital, and $\varphi(SM)$ is taken from stock markets only. $\varphi(K_T)$ will be explained in the next chapter.

The powerful spikes both up and down in the free growth charts were described in Chapter 2. Spikes tend to be explained by the fact that acceleration, the denominator in both the free growth and the thrift index, is occasionally close to zero. Near-zero denominators, whether above zero or below, can magnify mismeasurements. Some charts report the free growth index every year, and show all the spikes. Others filter out years where denominators fall below a chosen threshold, and spikes disappear accordingly. Filtration is unbiased in that free growth index is corrected down as often as up.

What jumps out from all those charts is that all versions of the free growth index φ fluctuate around one. That means that the unshown thrift index fluctuates around zero. We just saw that the thrift index will show as negative whenever the thrift numerator and acceleration denominator disagree in sign, meaning that thrift gain coincided with deceleration (negative acceleration) or conversely. Charts and tables show that thrift gain, meaning drop in consumption rate, coincides as often with a lower as a higher capital growth rate. Growth by thrift is a theoretical possibility which doesn't actually happen. The means of growth Mill describes in the paragraph quoted is the only kind that appears in the record.

Evidence from Stock Markets

Market-valued capital, reported in national accounts since 1990 or so and assembled at the convenient Piketty-Zucman website, is measured by a common standard in principle. Measurement begins with stock markets. It should. The stock market is the most exact source of economic information that I know. With due reservations about connivance and "stale prices," meaning outdated prices from earlier days because the stock has not traded since, or anyhow not enough for confidence, we know pretty well what markets think stocks are worth from tick to tick.

We would know better if markets were perfectly efficient. Proof that they aren't shows in medium-term autocorrelation or trend. Autocorrelation (in price) is tendency for markets to be up tomorrow if up today, and down if down. Trend is a shorter word for the same. Perfect efficiency ought to show a "random walk" where prices change captures all current news, news captures reality without optimistic or pessimistic bias, and tomorrow's price direction is as unpredictable as tomorrow's news. The only exception should be long-term uptrend with productivity gain through innovation. In this case it is not surprise in the news that brings growth, but gradual gain in present value as a foreseen better future is less discounted as it draws nearer.

There is chicanery as well as inefficiency. Insiders, braving the legal risks, may take advantage of outsiders. But it is not clear to me that insiders are likelier to be sellers than buyers. National accounts follow prices of publicly traded shares collectively, where some chicaneries should offset others.

Allowing for all this, I think national accounts are wise to accept stock prices as the best measure of underlying assets. Intangibles such as patents or market advantages are factored into share prices because they are realities that would be valued as such by bidders for the assets themselves. It is a mistake, I think, to suppose that shares prices would be less volatile if more descriptive of real value underneath. The existence of trends suggests the opposite. Trends would be expected from systematic underreaction to the news, so that reaction catches up later, while systematic overreaction ought to be followed by adjustment in the opposite direction. This gradual rather than immediate digestion of the news would tend to smooth out price response. Trends imply systematic underreaction, not overreaction. Market evidence shows something near that random walk as a usual rule, implying neither systematic overreaction nor systematic underreaction, but with some episodes of the latter. What would the reason be? My first guess would be something delaying the mechanics of price reaction when news is particularly surprising. Our sense of where prices should go right now seems not to get them there until later. Prefect reaction to perfect news ought to mean *more* price volatility, not less, from day to day.

Stocks are more volatile then most assets because most are "leveraged." Firms may issue bonds, and may borrow shorter-term from banks. Fixed interest on those debt claims is paid first. Shareholders get the rest of net output, which itself fluctuates around expected norms and is sometimes negative. If a firm's net profit (net output) is one million dollars one year, and one dollar higher the next, net profit will have varied only one ten thousandth of a percent. But if interest payments take up the same million dollars per year, every year, profit left for shareholders will have grown from nothing to one dollar. Its growth rate will have been effectively infinite. If the firm earns two dollars less the year after, it will have to invade capital to pay the interest, and owners take a one-dollar loss. Again the difference is trivial percentage-wise to net profit, but diametric to equity investors. The more fixed debt, the more surprise and volatility in whatever is left for shareholders. The ratio of debt to that remainder, called "equity," is the leverage meant. Stock in this security sense means the same as shares or equity.

Now I'll try to pull this together. Stock prices collectively, meaning all shares at current prices, is called "market cap." (Cap is capitalization.) Market cap does not measure the whole underlying value of the issuers, meaning firms that issued the stock, since there are debt claims that must be paid off first. It measures the equity residue. It measures that imperfectly because some inefficiency and chicanery are here to stay. It is more volatile than the debt claims because it is leveraged, but probably less volatile, given the observed reality of trends showing smoothed-out reaction of share prices to news over time, than what would be bid for the underlying assets, including intangibles, subject to the same debt claims that must be paid off first.

National accounts measure market-valued (physical) capital by beginning with market cap. They then add the market value of debt claims on the same issuers, along with equity and debt claims on the rest of the business sector, and then the same for the housing sector. The sum is "private wealth." Consumer durables such as cars and refrigerators are excluded as impractical to price. Government wealth net of national wealth is tracked separately, and tends to show as slight or negative.

Finding the Free Growth Index for Stock Markets

My concern in this chapter is the stock market as a data source for testing free growth theory. Here (4.2) would read total return in place of (net) output, while growth would be in market cap. Consumption in (4.2) would become dividend yield in the sense net of capital concurrently raised in new stock issues. The *Global Financial Data* website summarizes the history of world stock markets from inception in about 1700 for U.K., about 1800 in U.S., and later elsewhere. A nice feature of this data source, and most other sources for stock and security performance, is that market values are shown from the start. This left no need to correct for the inevitable lags in depreciation accounting, which gets the news only in purchases or sales.

Global Financial Data reports annual rate of return, growth rate in market cap, and "imputed dividend rate" as the difference. Dividend rate itself is reported as something a little different. I made no attempt to get to the bottom of this distinction, just as I made none to allow for editorial bias in the Piketty-Zucman website. I chose the imputed version for logical consistency.

This direct information obviates the chain of reasoning from (4.2) to (4.5), and allows me to jump to the latter. "Productivity gain" in (4.5) is simply annual change in reported rate of return. Acceleration is annual change in reported market cap growth rate. (4.6a) defines the free growth index as their ratio. $\varphi(\mathrm{SM})$, the green line, tracks it in the charts. It too fluctuates around the number one. Gains in dividend rate have coincided as often with gains in market cap growth rate as with drops.

This seems only to expound what everyone knows. Of course firms are likelier to raise dividends in years of growth, and cut them in years of decline. I never claimed that free growth theory does more than state the obvious. What is made obvious by the data is that a change in total return is the prime mover enabling market cap and dividend rate to accelerate or decelerate as a pair. What is made obviously wrong would be a thrift theory casting dividend restraint as the prime mover. Were that so, market cap acceleration would coincide with lower rather than higher dividend rates.

This pretty much completes my evidence for free growth theory. I have not found other promising data sources. One is tantalizingly close to hand. There is not much reason why corporate bond history is less transparent to the world than corporate stock history. A qualified expert might reconstruct market caps of both, side by side, to show a picture of the whole corporate sector. Surely I am not the only person who would take interest. What is the history of leverage, and of total return, and its growth and yield components, to debt and equity claims cap-weighted together?

It would be nice to test from such a dataset, again starting from (4.6), to see if free growth theory holds again. Who knows? Meanwhile, I think, the case is closed. All growth at very large scales is free until proved otherwise.

Where Does Opinion Stand Now?

What should we make of this evidence for free growth in national accounts and stock market data? Lawmakers would probably demand a recount or an investigation. Tax laws discourage consumption and dividends to encourage growth. Yet data show that lower consumption rate coincides as often with lower as higher capital growth rate for eight nations over four to fourteen decades. They will show the same for dividends when we come to that.

Economists would be less surprised. Solow has prepared them for the news. In 1956 and 1957 he showed evidence that most growth is not explained by capital accumulation, or saving through consumption restraint. His Nobel prize acceptance speech in 1988 includes:

> … In the beginning, I was quite surprised at the relatively minor part the model ascribed to capital formation. Even when this was confirmed by Denison and others, the result seemed contrary to common sense. The fact that the steady-state rate of growth is independent of the investment quota was easy to understand; it only required thinking through the theory. It was harder to feel comfortable with the conclusion that even in the shorter run increased investment would do very little for transitory growth. The transition to a higher equilibrium growth path seemed to offer very little leverage for policy aimed at promoting investment.
>
> The formal model omitted one mechanism whose absence would clearly bias the predictions against investment. That is what I called "embodiment," the fact that much technological progress, maybe most of it, could find its way into actual production only with the use of new and different capital equipment. Therefore the effectiveness of innovation in increasing output would be paced by the rate of gross

> investment. A policy to increase investment would thus lead not only to higher capital intensity, which might not matter much, but also a faster transfer of new technology into actual production, which would. Steady-state growth would not be affected, but intermediate-run transitions would, and those should be observable.
>
> That idea seemed to correspond to common sense, and it still does. By 1958 I was able to produce a model that allowed for the embodiment effect. … If common sense was right, the embodiment model should have fit the facts better than the earlier one. But it did not. Dension (1985) , whose judgment I respect, came to the conclusion that there was no explanatory value in the embodiment idea. I do not know if that find should be described as a paradox, but it was at least a puzzle.

Edward Denison was another leading growth economist Solow consulted. Remember that Solow had defined disembodied growth to mean better use of existing assets, as when ships carrying coal to Newcastle are inspired to reverse the business plan. It is easy to see how disembodied growth could come more or less for free. But Solow puzzled how embodied growth, which needs “new and different capital equipment,” could arrive without “ a policy to increase investment.”

It can for the same reason that Achilles can overtake the tortoise. Solow’s problem, I think, may have been that new and different capital equipment stands to embodied novelty as a new and different chicken laying a new and different egg. We can see how the different capital might come first through saving from consumption deferment. And it seems clear that the embodied novelty could not. But one of the beauties of calculus is that it allows chicken and egg to evolve simultaneously. Neither novelty precedes the other at the instant of first embodiment.

This time it is Newton and Leibnitz to the rescue, along with the trusty Gunnar Myrdal, if I guess right about Solow’s misgivings. Since he understands calculus and Myrdal far better than I do, I may guess wrong. So let me try another way. It seems to me that embodied growth is still disembodied growth at a finer and more basic scale. Instead of redeploying finished goods, we recombine raw materials. We aren't creating something from nothing. And growth is not so free that it needs no cost at all. It still needs depreciation plowback. Net investment would mean any in addition. The charts and tables, as I read them, show a steady stroke of deprecation plowback paying for all innovation, embodied or disembodied, that copes as best it can with good times or bad.

The steady stroke metaphor, showing how cost (the steady stroke) and growth (against the shoreline) could be desynchronized, explains the possibility of free growth. It does not explain why the record shows no other kind. My best guess as an explanation would look to biology. The biological imperative shapes our tastes and behaviors for lineage survival in some sense of family or population or species. Other species crowd their niches. They cannot gain by consumption restraint for the two excellent reasons that there is no consumption to spare and no niche space if there were.

Ricardo, Malthus and West all warned against rote replication in economies already developed. We must create means to make more from less. I suspect that we are up against that wall more or less continually. Innovation pushes the wall back when genius and happenstance are at their best, and helps us survive the rest of the time. It costs the same either way. Consumption sacrifice is sacrifice to gods who work their will heedless of it.

My implication that we have no consumption to spare could mislead. Rather we have none safe to spend. All creatures hold back reserves against adversity. Economies usually carry more capital, producing more consumption, than they need for now. It is a rainy day fund to be drawn down in lean times and built back in plush ones. Many nations invaded capital to keep up consumption during the world wars and world depression between, and reversed course since. But we would be fools to spend it for return over time when the next crisis might come tomorrow.

What exactly do I picture as this capital reserve? Is it vodka distilleries that might be converted to orange juice plants in a pinch? I don't really know. Human capital itself is versatile. Some retirees could unretire, and vodka plant workers might convert with not much retraining. I will explore some of this idea later.

Harrod's Knife Edge

Solow's neoclassical growth model developed from ideas published a decade earlier by Roy Harrod. Harrod had described a "warranted growth path" given by the pace of technological innovation. He reasoned correctly that any effort to push investment faster must soon founder in the diminishing returns foreseen by Malthus, Ricardo and West in 1815. But how could we get investment exactly right? There was a critical "knife edge" with little margin for error. He was right to stress the dangers of overinvestment. I do the same. But free growth theory, and the overwhelming evidence that it is right, bring a new perspective.

What Solow and other economists teach today , judging from the textbooks I read, is more or less Harrod without the knife edge. We are taught to figure out the warranted growth path, meaning the rate of technological growth, and then invest just enough, *ex ante*, to exceed depreciation by that margin. But my charts and tables show that any investment beyond depreciation recovery is deadweight loss. There is no need to know the warranted growth path because optimum investment is not a function of whatever it might be. Depreciation investment captures the whole of technological growth, and further investment adds no more. It is money left on the table. Optimum *ex ante* investment, at the collective scale, is depreciation investment. *Ex post* results will reveal the warranted growth path.

What about Underinvestment?

One indication in the charts and tables might leave us puzzled. It is easy to understand the futility of *ex ante* investment (consumption restraint) beyond depreciation plowback in light of the diminishing returns described by Ricardo, Malthus and West two centuries ago. We might crowd our niche, like other creatures, and leave neither consumption safe to spare nor room for capital accumulation before diminishing returns set in. But too little investment could seem a tougher challenge. No thrift at all, meaning not even depreciation plowback, would mean no growth at all. Then consumption rate would vary inversely as capital acceleration, just as predicted in in thrift theory. And underinvestment, meaning plowback of less than current cost depreciation, ought to happen about as often as overinvestment. If each year of underinvestment tended to fit the predictions of thrift theory even a little, free growth indexes should average something less than one in the end. But they don't. The index varies, but averages more than one as often as less in every country and period.

The explanation I suggest is already implied in that insight of two centuries ago. Just as overinvestment and capital glut diminish returns, underinvestment and capital shortage augment them until supply of capital catches up to demand. Even if there were no plowback at all in some years, higher returns to capital already in place would help take up the slack. There would be real danger in sustained underinvestment or overinvestment. The saving grace is in market forces restoring equilibrium as investors maximize return.

Summary

This gives the outline of free growth theory. It is my best speculation on how to make sense of the charts and tables. It follows Mill more or less exactly, and risks the next step in the bold new direction pointed by Solow.

My prize exhibits are the charts and tables. Better this book should show them alone, with an explanation of my testing equations and the data sources, than all the rest without them. They could hardly support free growth theory better than if Mill and I had rigged them. The consequences are huge. We must get rid of the corporate double tax ASAP, and raise the corporate tax rate enough to make the overall adjustment revenue-neutral. That should help get both parties on board. We must tax capital gains at the same rate as ordinary income. Dividend rates should revert to the 4% - 6% range typical over the centuries before the pro-investment policies put in place after World War II. We must do whatever we can to level the consumption-investment playing field.

Obvious qualifiers are worth spelling out. (4.1) and all consequences are meant to describe at the collective scale, where growth cannot be explained by transfer. Free growth theory assumes depreciation investment, not zero investment. My charts and tables will never be exact. There are inevitably errors and judgment biases in the national accounts and research assembled by Piketty and Zucman, more added by them, and more by me. These cautions will apply to later chapters as well.

CHAPTER 5: BRINGING HUMAN CAPITAL IN

Human capital is labor measured as a dollar sum rather than as so much per hour or year. It treats pay less invested consumption as our cash flow, and finds our present value (to ourselves) as expected lifetime cash flow discounted by our own time preference rates, meaning what we would charge for delay. Measurement in this way usually finds it as something near three fourths of all capital. Physical capital, much better understood because it can be bought and sold as well as hired, is only the visible tip of the iceberg. The term human capital itself is touchy because it can suggest that life has a price. Irving Fisher used it in quotation marks in 1898[1], attributing it to earlier sources I haven't found, but not in his two great books on the topic in 1906[2] and 1907[3]. Wikipedia is mistaken in attributing the term to Arthur Pigou a generation later.

History of the Idea

The concept began with Petty in 1664[4]. He estimated the aggregate pay of English workers, and divided by the discount rate he had modeled in *A Treatise of Taxes* two years earlier. I have not read *Verbum Sapienti*, but have read two of his later versions of the same argument[5].

Petty's method was criticized by William Farr in 1854[6], also in a paper I haven't read, for neglecting what I call invested consumption. Farr, if I read the right description of his argument, was both right and wrong. Petty was modeling human capital of aggregate workers. These were mostly adults, who no longer receive invested consumption if my model is right. That makes his method sound in principle for measuring adult human capital separately. It follows that he underestimated the human capital of England, rather than overestimating it as Farr claimed, by leaving out the human capital of children. But Farr deserves credit for pointing out that human capital in general capitalizes pay less invested consumption.

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[1] *The Nature of Capital*.

[2] *The Nature of Capital and Income*.

[3] *The Rate of Interest*.

[4] *Verbum Sapienti.*

[5] *Political Arithmetic* (1676) and *A Gross Estimate of the Wealth of England* (1685).

[6] *Vital Statistics*.

Keynes' teacher Alfred Marshall agreed with Farr in 1990[7]. As I read this passage, Marshall interpreted maintenance consumption as investment. So did B. F. Kiker[8] in 1968. I interpret it as exhaust in taste satisfaction enabling energy to earn pay concurrently, while preserving but not increasing pay expectations in future. Invested consumption would mean addition to human capital concurrently for expected realization with interest in higher pay later.

Meanwhile economists had developed the complementary idea of human capital as present cost of investment accumulated before. Adam Smith[9] in 1776 wrote

> …The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person.

The conversion of some consumption into human capital was a favorite theme of Frank Knight a generation before Schultz. Only the rest is what Schultz called pure consumption eliminated from the economy in satisfying tastes. Becker added in 1964 that this investment must be expected to be recovered with interest, at least when paid by employers in job training. Schultz had also pointed out that human capital depreciates, and invests some work in itself in the effort of learning to complement the exterior investment of nurture and schooling. Ben-Porath, expressing a Schultz-led consensus, added in 1967 that human capital growth is invested consumption (the nurture and schooling) plus self-invested work less human depreciation. All these ideas are now accepted everywhere in human capital studies.

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[7] *Principles of Economics*.

[8] *A History of Human Capital*. I learned of Farr from Kiker.

[9] *The Wealth of Nations.*

Jacob Mincer seems to have been first in print with the post-war revival of interest in human capital, in his 1958 paper[10] rederiving Irving Fisher's present value equation and stressing job training. Schultz impresses me as the main idea man among these post-war contributors. He usually avoided math, unlike the others, and is probably the best source for quotes in plain English. His paper *Investment in Human Capital,* published in 1961, includes:

> … Much of what we call consumption constitutes investment in human capital. Direct expenditures on education, health and internal migration to take advantage of better job opportunities are clear examples. Earnings foregone by mature students attending school and by workers acquiring on-the-job training are equally clear examples.
>
> … This use of leisure time to improve skills and knowledge is widespread… I shall contend that such investment in human capital accounts for most of the impressive rise in the real earnings per worker…
>
> … Measured by what labor contributes to output, the productive capacity of human beings is now vastly larger than all other forms of wealth taken together…
>
> … the curve relating income to age trends to be steeper for skilled than for unskilled persons. Investment in on-the-job training seems a likely explanation…
>
> … We can think of three classes of expenditures: expenditures that satisfy human preferences and in no way enhance the capabilities under discussion – these represent pure consumption; expenditures that enhance capabilities and do not satisfy any preference underlying consumption – these represent pure investment; and expenditures that … are … partly consumption and partly investment, …

In 1962[11] he added:

> … the investment in human capital can conveniently be classified in (1) nurture and higher education, (2) postschool training and learning, (3) preschool learning activities, (4) migration, (5) health, (6) information, and (7) investment in children (population) …

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[10] *Investment in Human Capital and Personal Income Distribution*

[11] *Human Capital: Policy Issues and Research Opportunities*

… But unlike the wonderful “one-hoss shay,” the productive life of educational capital typically does not go to pieces all at once. It depreciates along the way, it becomes obsolete, it is altered by changes in retirement and by the state of employment …

… As already noted, educational capital, like reproducible physical capital, is subject to depreciation and obsolescence. The established tax treatment takes account of both depreciation and obsolescence in the case of physical capital, but this accounting is not extended to education capital… In brief, our tax laws… appear to be all but blind to the fact that educational capital entrails maintenance and depreciation, becomes obsolete, and disappears at death…

These excerpts clearly show Shultz’ meanings of pure and invested consumption, and of human deprecation. He says “pure investment” in place of my “invested consumption”, but I prefer to follow tradition by applying “invested” to physical capital alone. We also see his belief, with which I disagree, that substantial invested consumption continues after independence and physical maturity. For example, he writes “Direct expenditures on … health and internal migration … are clear examples.” I interpret these outlays, when applied to adult workers, as maintenance consumption preserving rather than adding skills, and enabling current pay rather than invested for higher pay later.

I agree that self-invested work “to improve skills and knowledge … accounts for most of the impressive rise in the real earnings per worker …”. But I don’t share Schultz’ view that the “use of leisure time” accounts for much of this improvement. My years in plants and oilfields and offices have given me an impression of some study by workers during leisure time, but mostly passive accumulation of experience and insight while fully at work on the job.

Practical Uses

One obvious use of the human capital idea is to compare the factors (human and tradeable capital) in the same dimension. Capital and labor cannot be added, as Petty knew, since capital is measured in dollars where labor is measured in dollars per unit time. But Petty showed that the idea of human capital as discounted cash flow measured in a money sum allows the factors to be summed together. The revival of interest at the Chicago school soon introduced the term physical capital for land and man-made things that can be bought and sold, and total capital for the sum. Physical capital is a misnomer in that we are physical too. But I have used it throughout so that economists can follow me and general readers can pick up some of their language.

From the Y = C + I Equation to the Y Rule

Chapter 2 summarized my argument adjusting the Y = C + I equation to the Y rule. Chapter 4 spelled out the former in (4.1). The Y rule made the hidden asterisks of the Y = C + I equation explicit. I said in both chapters that the free growth equations are the same for both when we allow for the asterisks.

Let's go through the derivation of the Y rule again. (4.1) shows

$$\text{output} = \text{investment} + \text{consumption.}$$

I generally mean the version of this where "*ex post* net" is understood before both "output" and "investment". I said that this idea is implicit in the Mill quote, and is probably as old as economics. Net output, here or anywhere, means creation of value. Then the equation would be guaranteed by the truism, at the collective scale, if net investment meant growth of all value existing, meaning total capital, while consumption meant elimination from total capital collectively and nothing else. But net *ex post* investment as meant throughout this book, and anywhere in macro, means growth in physical capital alone. Consumption includes Schultz' invested consumption transferred into human capital as well as his pure consumption eliminated from total capital as a whole. What the truism guarantees is rather

$$\text{output} = \text{total growth} + \text{pure consumption,} \qquad (5.1)$$

at the collective scale and where "*ex post* net" is again understood before "output." (5.1), but not (4.1), guarantees that terms are mutually exclusive and exhaustive.

Total growth means this *ex post* net investment (growth of physical capital) plus growth of human capital. The latter would have puzzled us before the contribution of Ben-Porath. Equation (4) in his 1967 paper, summarizing the first three, shows

$$\text{human growth} = \text{invested consumption} + \text{self-invested work} - \text{human depreciation}, \qquad (5.2)$$

using my terms rather than his.

Chapter 6 will argue that this equation needs to be clarified. I gave a preview in Chapter 2, and will update it now. Work is the output of human capital. Output is not always positive. It is negative whenever growth and cash flow sum to less than zero. A negative sum of these two shows unrecovered decapitalition (also called deadweight loss). That would include unrecovered human depreciation. If (5.2) meant all including negative self-invested work less all including unrecovered human depreciation, it would subtract unrecovered human depreciation twice. Then it must be corrected either to

$$\text{human growth} = \text{invested consumption} + \text{positive self-invested work} - \text{human depreciation}, \qquad (5.3)$$

or equivalently

$$\text{human growth} = \text{invested consumption} + \text{self-invested work} - \text{recovered human depreciation}. \qquad (5.3a)$$

It is clear that Ben-Porath meant (5.3), as other evidence shows that he treated human depreciation as unrecovered. So does all tradition, mistakenly I believe, with the partial exception of Becker. I will generally prefer (5.3a), although the two are identical in meaning.

Schultz' analysis of consumption found

consumption = invested consumption + pure consumption. (5.4)

This plus (5.1) and (5.3a) combine for

output = total growth + pure consumption
= investment + human growth + pure consumption
= investment + invested consumption + self-invested work
– recovered human depreciation + pure consumption
= investment + invested consumption + self-invested work
– recovered human depreciation + consumption
– invested consumption
= investment + consumption + self-invested work
– recovered human depreciation. (5.5)

"*Ex post* net", as always, should be understood before both "output" and "investment".

Chapter 6 will revisit this logic once again, and add a second way to the same conclusion.

The Growth Equation Under the Y Rule

(5.1) can be arranged as

total growth = output – pure consumption, (5.1a)

as a counterpart to (4.1a). Total growth means growth in total capital. My argument continues as in Chapter 4. Since (4.2) was a blind alley, skip to (4.3). That now becomes

$$\frac{\text{total growth}}{\text{total capital}} = \frac{\text{output}}{\text{total capital}} - \frac{\text{pure consumption}}{\text{total capital}}, \tag{5.6}$$

which can be written as

$$\begin{aligned}\text{total growth rate} = {} & \text{total capital productivity} \\ & - \text{pure consumption rate,}\end{aligned} \tag{5.6a}$$

as with (4.3a). Since (5.6a) is always true, and not only under occasional circumstances, we also get

$$\begin{aligned}\text{change in total growth rate} = {} & \text{change in total capital productivity} \\ & - \text{change in pure consumption rate.}\end{aligned} \tag{5.7}$$

This parallels the logic of (4.4). Again save space by reexpressing this as

$$\text{total acceleration} = \text{total productivity} + \text{total thrift}, \tag{5.7a}$$

where "total" means "of total capital". Now divide by total acceleration to reach the counterparts of (4.5) and (4.5a).

I will sometimes save space, from now on, by expressing these arguments in the equations of Chapter 4, as for example in leaving the words "total" and "pure" implicit if the context shows that I mean them.

The Slave Paradox

Say that Phil enslaves Bill. Bill's maintenance consumption had been taste-satisfying pure consumption to Bill when Bill was free, and so was not deducted from his pay to find his gross realized output as valued by himself. But Bill's maintenance consumption satisfies no tastes of Phil. Cash flow is gross realized output less plowback from revenue less new investment from outside, for either factor, while net output is gross realized output less depreciation plus proprietary output. Both drop by the amount of Bill's maintenance consumption on Phil's books as a slaveowner. So then does Bill's present value of that cash flow.

This *noir* thought experiment is worth thinking through. It shows that even if slavery were legal and common, its market evidence would neither show the value of human capital nor refute the fact that human capital is inalienable. It is inalienable for the reason, if none other, that our maintenance consumption satisfies no one else's tastes. Phil did not acquire Bill's human capital. He converted it to livestock worth much less.

Another useful point is that assets in general tend to be worth more to their owners. This does not contradict the convergence axioms. We buy or build to taste. That difference is particularly important as to assets not meant to be traded, such as productive plant. I suspect that this is what the national accounts missed in adjusting depreciation.

Maintenance Learning

Ben-Porath argued, persuasively I believe, that both kinds of investment in human capital must end when not enough time remains for recovery with interest. Those two are invested consumption, including schooling, and self-invested work. I propose that invested consumption substantially ends at maturity and independence. Self-invested work of learning continues long after, as there remains no other adequate explanation of age-wage profiles. When does it stop?

Learning itself continues to the end. Yet if Ben-Porath is right, and he is, self-invested learning stops well before. What continues, I think, is what I call "maintenance learning". It is defined as learning to keep up pay now rather than to enhance pay later. At all ages, we must learn the names and traits of new clients and co-workers and suppliers and regulations continually to do what we are paid for.

This observation helps clarify my hypothesis that job learning costs no time that might otherwise have been spent earning pay. My deeper meaning is that invested learning and maintenance learning are the same process costing the same time but with different economic effect, much as with invested and maintenance consumption.

Evidence that hourly if not yearly pay rises until retirement, or very near, would refute Ben-Porath's claim if human capital ended at retirement. But it continues through retirement because imputed pay does.

Mill and a few economists before him acknowledged "productive" and "unproductive" consumption. The productive kind was what I call maintenance and invested consumption. Unproductive consumption meant any written invested for higher pay later nor supporting survival pay now. That would give

$$\text{pure consumption} = \text{maintenance consumption} + \text{unproductive consumption} \quad (5.8)$$

and

$$\begin{aligned}\text{consumption} &= \text{invested consumption} + \text{pure consumption}\\ &= \text{invested consumption} + \text{maintenance consumption}\\ &\quad + \text{unproductive consumption}. \qquad (5.9)\end{aligned}$$

Investment and maintenance contrast in human capital as in a firm. Investment is valued only in the expectation of future maintenance. No maintenance later, no value now. To count maintenance as new investment would count part of the old investment twice. Where the accounting treatments differ is in disposition. Maintenance in the firm is recovered in pay and products. I thought before that the same was true of human capital. Thanks to the parable of the boss and her secretary, I now I think it is exhausted in satisfying our taste for lineage survival.

Restating the Three Fourths Rule

Petty, neglecting human capital of children, measured total capital as about 2.5 times physical capital in 1664. Most estimates since have run higher. I myself model 4:1 or so as a first approximation. The ratio of human to physical capital might hold to some such lasting norm for the same reason that number of shepherds should hold in proportion to number of sheep. They own as many as they can manage. Human capital means value of skills, including skills in acquiring and employing physical capital. If the value of physical capital changes, so should the value of its management. There is truth behind the old doctrine that a rise in the productivity of labor explains growth in value of physical capital. But old skills can also be more in demand when improvements in physical capital productivity can get more good out of them. Drivers are worth more when there is more valuable freight to be trucked. A rise in either kind of capital tends to invite a rise in the other.

The ratio of pure to invested consumption is unsettled in human capital studies. I just showed why I think Schultz gave the right clue in 1961 when he defined invested consumption as an outlay to be recovered with interest in consumption over the future, and pure consumption as an outlay bringing taste satisfaction now. It is the same distinction as with investment and operating expense in the firm. A professional's meals and doctor bills, and even his subscription to trade journals, are expenses needed to keep his earning power intact rather than investment to raise it over the future. It seems to me that once we are physically mature, the only avenues of investment in skill building, not exhuast in skill maintenance, are self-invested work and job training or other adult education.

And I argued that there is probably not much adult education. Only a few go back to school. From what I've seen, job training is concentrated in our first few months when schooling is over and full-time work begins. That's why I think that the rise of pay with age, implying a rise in skills marketed, is explained more or less entirely by self-invested work in the mainly subliminal accumulation of job experience. (Work means the output of human capital, and nothing in the definition of output implies effort or even awareness.)

I agree with Ben-Porath that all consumption and all work should be modeled as self-invested until independence and full-time job entry, given that models must simplify. But I just showed why I model all consumption after, or anyhow after a few months of job training, as Schultz' pure kind. Here I would fault Mincer and his pupil Becker, but not Schultz or Ben-Porath, for too much focus on the potential of job training. It exists and is crucial. But it is so small a fraction of invested consumption, judging from my experience, that I prefer to neglect it in modeling. Job learning, conversely, seems to explain all rise in pay with age.

Biology might predict the same. Nature's plan is that we first develop and then reproduce. Some creatures follow sharply-defined somatic and reproductive phases showing first only development and then only reproduction. A mature butterfly does not eat. It may even lose mouth parts. Its time is spent in reproduction alone. Other creatures including us like eating too, but nature gives them that taste for the sake of the one behind. Adult consumption, as I see it, is more or less all pure consumption exhausted from total capital in satisfying our taste for life and energy. Consumption by the young is invested because that is the big idea. Nature's plan is reproduction to maturity.

Now suppose for simplicity that consumption is age-independent. Nobelists Milton Friedman and Franco Modigliani, mentioned earlier for their opposite reactions to my banking idea, separately argued something like that in the 1950s for adults. My extension backward to birth seems defensible when we remember to include unpaid parental care and then schooling in invested consumption. I model human capital as continuing after retirement as present value of implicit pay by ourselves and others for caring for ourselves and those others. Then if adulthood runs from ages 20 to 80, those simplifying assumptions would give pure consumption as three fourths of all consumption.

I also modeled human capital as three fourths of total capital. My tag for the two ideas together was the "three fourths rule." The agreement of the two ratios as modeled is a convenient coincidence. If they differed, this book would have to be a few sentences longer. Each is first-order approximation only.

The Free Growth Index for Total Capital

Given the three fourths rule, the free growth index for total capital is derived by reading "pure" and "total" before the words consumption and capital in the equations of Chapter 4.

Now back to the charts and tables. The free growth index for total capital is tracked in the red line and labeled $\varphi(\mathrm{Kt})$. It too fluctuates around one in each country, but in a much narrower range than does the blue line $\varphi(\mathrm{K})$. The reason is the three fourths rule. The thrift index, not shown in the charts and tables, is one minus the free growth index. It is derived in Chapter 4 as thrift rate over acceleration, where thrift rate is change in consumption/capital ratio times minus one. By the three fourths rule, where pure consumption is three fourths of all consumption while total capital is four times physical capital, the pure consumption/total capital ratio is only 3/16 (3/4 divided by 4) the size of the consumption/physical capital ratio. The yearly changes in these ratios reflected in the numerator of the thrift index will hold to the same proportion. The denominator is acceleration, which is always the same for physical as total capital by the assumption that they hold in 1:4 proportion throughout. This explains why the unshown thrift index, or numerator over denominator, is automatically 3/16 as large for total as for physical capital, and why the shown free growth index runs nearer one in consequence.

I have just given an idea why it can be worthwhile to brush up the algebra we all learned in high school or before, and to suffer the nuisance of mathematical notation. I have made a very simple truth, obvious in hindsight, seem complicated by making do with words alone. One less something nearer zero, whether that something (the thrift index) is positive or negative, is nearer one. The wonderful books of Einstein (with Enfeld) and Steven Hawking, not to mention Mill, show that even calculus can be put that way. My task has been to follow their tough act. But I will now start to infiltrate notation where I think that that form of shorthand should help more then it hurts.

Summary

The data for the free growth index of total capital $\varphi(\mathrm{Kt})$ in the charts and tables do not represent a separate test. It is the same test adjusted to the three fourths rule. That was proposed as a convenient rule of thumb. I would have shown a true separate test if I knew how. Pure consumption might become separately measurable some day, but human capital will not. The Phil and Bill parable shows that not even evidence from slave markets would be on point. Human capital has no possible value to any but its original owner.

Whether in words or notation, I hope to make the point that Chapter 4 and the charts and tables showing $\varphi(\mathrm{K})$ are likely to understate the case for Mill. Those showing $\varphi(\mathrm{K}_\mathrm{T})$ should be nearer the truth. Physical capital and pure consumption are less than the whole. My three fourths rule will never be exact because reality cares little for the convenience of modelers. Proportions between the kinds of consumption will not hold exactly constant and will never exactly agree. But I don't think the three fourths rule is so wrong that the real value of $\varphi(\mathrm{K}_\mathrm{T})$ doesn't run nearer one than the real value of $\varphi(\mathrm{K})$. (The infiltration begins.)

Then the data support free growth theory convincingly enough if we trust equation (4.1), as do all macroeconomists as far as I know, and probably more convincingly when human capital is considered too.

The cautions at the end of Chapter 4 apply even more. My charts and tables for $\varphi(K_T)$ repeat the accumulated error and bias of those for $\varphi(K)$, and add the crude simplification of the three fourths rule. (5.4) expresses my understanding of what Ben-Porath means in equation (4) in his 1967 paper, where variables are defined in his three equations before. If (5.4) doesn't capture his idea faithfully, it anyhow captures mine. Likewise my (5.5) may or may not do justice to Schultz. Some but not all possible interpretations of what he might have meant give (5.5). Again, it is my belief whether or not his.

What Farr, Marshall and Kiker have shown, by deducting both invested and maintenance consumption from pay to get adult cash flow discounted to present value, is human livestock value to a slaveowner. It is very little. The parable of Phil and Bill argued that Bill's maintenance is expensed on Phil's books, but treated as net output and positive cash flow on Bill's. I said I can't prove that from axioms and definitions so far, and will need the biological imperative.

CHAPTER 6: PARALLELS WITH THE FIRM

My Own History with These Ideas

For sheer shock value, at least to economists, the pay rule and the Y rule must count first amount the surprises I promised. Who would have thought that human depreciation is expected to be recovered in revenue (pay) and product value just as with plant depreciation? Heresy! Yet nothing is more easily proved. Either the maximand rule or the deadweight loss rule is enough.

Free growth theory and next generation theory give more scope and policy implications. But the pay and Y rules have plenty of those, and may be new to the world. Mill and Petty beat me to the others.

I have been arguing the pay and Y rules from the time I reversed course from Quesnay's idea some five years ago. I will rederive both in new ways at the end of this chapter. My change of mind was a classical epiphany. I had been resisting the obvious for years. I showed how my parable of the boss and her secretary got me on track.

My depreciation theory is a lesser shock. It occurred to me over the Christmas holidays this year. It contradicts the national accounts, whose Capital Consumption Adjustment corrects book depreciation from linear to exponentially falling. That would make depreciation fastest at the start, and progressively less. No one has objected because practical experience seems to say the same. If we resell a new car or house after only a few months of use, we take a big hit. If we resell a new factory, which would have been tailored to our unique business plan, we take a bigger one. My counter-argument is that premature resale reflects adverse selection. The usual motive for premature trade is bad news and pressure to sell, not pressure from others to buy.

I point instead to the millions who don't sell. I argue that depreciation and amortization are the same in essence. Loan payments are all interest at the start, and all amortization at the end, by inference from the present value rule.
My risk theory is a mini-surprise. It shifts focus from the risk of the asset to the risk aversion of the owner. Another mini-surprise is the feature of my growth truism pointing out that deadweight loss means negative unrealized output.

I will revisit these topics in more depth after I cover the necessary groundwork in comparing the accountancy for human capital and the firm.

Assets, Owners and Revenue

Assets means examples of capital of either factor. Their owners are all members of the reproducing population assumed in the axioms. Each, from newborns up, owns human capital at least. Value and growth and cash flow and output are properties of capital. Tastes, aims and ends are properties of owners. Human capital reads its owner's aims, and manages both factors to realize them. Positive cash flow is outflow from assets to owners, to exhaust or reinvest or give away as they like. In the last two cases, the owner is mediating transfer out. She also mediates transfer in from reinvestment or gift received.

Think of capital as source and present value of foreseen cash flows. Owners are the foreseers, the recipients of positive cash flows, the exhausters of some in taste satisfaction, the deciders of the time preference rates giving present value, and the mediators of transfer out and transfer in (negative cash flow). In the case of the diamond ring, the psychic positive cash flow arrived without mechanics. The more typical case reaches the same outcome indirectly.

(Net) output of an asset is its value added, or creation of value. Output can be realized as outflow to owners for reinvestment or gift or exhaust, or it can be left in as growth. The part left in is proprietary or unrealized or self-invested output.

Outflow to owners can also include decapitalization from capital already in place, as in withdrawals from a bank account. I say decapitization, rather than depreciation, because the appropriate term might rather be amortization or depletion or liquidation in sale, depending on circumstances and the nature of the asset. The sum of the realized output and decapitalization can be called "gross cash flow", meaning gross before deducting plowback and negative cash flow (transfer in). Then

$$\begin{aligned}\text{gross cash flow} &= \text{cash flow} + \text{plowback} + \text{transfer in} \\ &= \text{realized output} + \text{recovered decapitalization.}\end{aligned} \tag{6.1}$$

Here I specify recovered decaptalization because I treat deadweight loss as decapitalization too. Cash flow as accountants and businessmen use the term usually means gross of plowback, although net of transfer in. My meaning, net of both, is the one always applied in finding total return and present value.

Although cash flow might be in kind as well, I will follow convention by treating it as if realized from sale in cash. The owner can then spend the revenue on exhaust (pure consumption) or reinvestment or gift as she likes, but might also plow some or all back into the originating asset. The general principle is

$$\text{positive cash flow} = \text{gross cash flow} - \text{plowback.} \tag{6.2}$$

In simple cases, revenue measures and equals gross cash flow for each asset. But revenue as the term is actually used is likelier to sum contributions from many assets and owners. To keep that usual meaning separate, define this asset's share as "earned revenue". Then

$$\text{gross cash flow} = \text{earned revenue.} \tag{6.3}$$

Another way to put the same idea is

revenue = collective gross cash flow = collective earned revenue (6.4)

from all contributors to revenue together. Then revenue and earned revenue would be the same if there are no other claims.

Earned Revenue and Cash Flow

A classical illustration of revenue generated collaboratively is the firm. The firm proper can be interpreted as a single asset of physical capital. Its typically many owners agree to hire outside management, meaning outside themselves, to contract and trade on their behalf. The firm through its managers hires the other employees, contracts with suppliers, and generates a joint product representing all its own gross cash flow plus any contributed parts of gross cash flow of others. The product is sold for revenue in the collective sense. Revenue is first applied to satisfy claims on it by those outside contributors. Claims recovered include current purchases from suppliers realized in sales. Others are pay to management and other employees, along with rent, interest, utilities, other services, and whatever is due to the tax man. The principle is to include all outlays by the firm needed to secure revenue now, as distinct from outlays invested for the sake of more revenue later. The share of revenue due the firm proper is any residue after all those prior claims are met. Then

gross cash flow = revenue – prior claims = earned revenue (6.5)

gives the contribution of the firm proper.

Earned revenue may or may not be passed to owners. Management is typically authorized to plow back any part as reinvestment, say in replenishing inventory or cash or in buying new plant and equipment. Any revenue left over after that plowback is transferred out to owners as dividend yield.

Negative cash flow, or transfer in, always means new investment added from outside. Plowback from revenue is excluded, as it is already recognized as a deduction from positive cash flow. For the firm, the only source of positive cash flow is proceeds from new shares issued. With this understood,

cash flow = gross cash flow – plowback – transfer in
= earned revenue – plowback – transfer in
= positive cash flow – negative cash flow, (6.6)

where

positive cash flow = earned revenue – plowback, and
negative cash flow = transfer in. (6.7)

Firms use the term gross realized output to mean the same thing as what I call gross cash flow. A common definition is

gross realized output = realized output + depreciation.

Now we come to the subtle point allowing for deadweight loss. The total return truism shows that output equals value growth plus cash flow. Then output is negative wherever the sum of growth and cash flow is less than zero. Natural disasters and bad investments can make them so. Those unexpected setbacks are examples of deadweight loss. It amounts to unrecovered depreciation, meaning depreciation not recovered (realized) in positive cash flow. I'll get back to that soon. The point at present is that the equation above really means

gross realized output = realized output + recovered depreciation.

Here too I prefer the generality of "decapitalization" over "depreciation", and define

gross realized output = gross cash flow
= realized output + recovered decapitalization
= earned revenue + recovered decapitalizaton. (6.8)

The terms gross cash flow, earned revenue and gross realized output will be used interchangeably. "Realized" and "recovered" will likewise be synonymous, as will be "proprietary", "unrealized" and self-invested".

(A6.1) allows

realized output = cash flow + plowback + transfer in
– recovered decapitalizaiton. (6.1a)

Define

unrealized output = output – realized output
= growth + cash flow – realized output
= growth – plowback – transfer in
+ recovered decapitalization, (6.9)

by (6.1a) and the total return truism.

Proprietary Output and Deadweight Loss

Unrealized or proprietary or self-invested output of the firm is creation of value not yet sold or not meant to be sold. This can be something as workaday and perfunctory and automatic as output to inventory. Other illustrations could be where a construction firm builds its own offices, or a car manufacturer makes cars for its executive fleet. (6.9) shows that it includes all growth not explained by plowback plus transfer in less recovered decapitalization. This implicitly includes all free growth. Judging from my charts and tables, free growth seems to mean all of growth at the collective scale. What effect might it have on the firm?

Free growth includes random windfall gain and deadweight loss as well as the overall upward trend expressing new ideas. Deadweight loss is unrecovered decapitalization, meaning not recovered in cash flow, That makes it negative output as the sum of growth and cash flow, and specifically negative unrealized output. Then

deadweight loss = unrecovered decapitalization
= negative output
= negative unrealized output
= max (0, – output)
= max (0, – unrealized output). (6.10)

Also

positive unrealized output = max (0, proprietary output), (6.11)

and

output = unrealized output + realized output. (6.12)

The Growth Truism

In general,

growth = capitalization from outside + capitalization from inside
– decapitalization. (6.13)

Here

capitalization from outside = negative cash flow = transfer in, and
capitalization from inside = positive unrealized output + plowback.

Also

decapitalization = recovered decapitalization + unrecovered decapitalization
= recovered decapitalization + deadweight loss.

Then

growth = transfer in + positive unrealized output + plowback
– recovered decapitalization – deadweight loss, (6.14)

or more simply

growth = transfer in + positive unrealized output + plowback
− decapitalization. (6.14a)

(6.14a) can also be expressed as

growth = transfer in + unrealized output + plowback
− recovered decapitalization. (6.14b)

For convenience, define

gross transfer in = transfer in + plowback,

So that (6.14) through (6.14b) can be put more compactly as

growth = gross transfer in + positive proprietary output – decapitalizaiton
= transfer in + unrealized output – recovered decapitalization. (6.14c)

Any of these versions of (6.14) can be called the growth truism. The new term gross transfer in will help shorten equations for human capital.

Management as a Quasi-Owner

Owners (shareholders) typically allow management wide latitude to cope with needs. It stands in place of owners. Accounting tradition, and this book too, reasons out the steps from revenue to dividend yield as if management itself were the owner. Otherwise there would be little to say. From the shareholder viewpoint, revenue is simply dividend yield.

But the bottom line is the same. The maximand is output, or growth plus cash flow. Positive cash flow, in the sense net of plowback, is dividend yield on both the firm's books and the shareholder's. Negative cash flow on the books of shareholders individually is purchase of any shares in the same firm. On the books of shareholders collectively, where sales and purchases of existing shares offset, it simplifies to purchase of new stock issues alone. This too is just as on the books of the firm.

My purpose in this analysis of the firm has been to derive equations valid for any capital of either factor. The firm is a good model for several reasons. Its accounting traditions are centuries old, and have been well thought through. It is rich in possibilities because it has to be. It must describe firms of many kinds. It must allow for contingencies whether or not they apply. For many simple assets, say the firm's shares as opposed to itself, revenue and positive cash flow can be the same. But the complexity and versatility of the firm itself, and the person-likeness added by its internal management, make it a useful model for any and all capital of either factor.

Not that I claim to follow accounting tradition closely, or even to understand it closely. I am even less an accountant than an economist. My terms and concepts tend to be idiosyncratic. The main thing is for the logic to hold together.

Human Capital by Analogy to the Firm

It is reasonable to define pay as the revenue of human capital. Earned revenue for the firm is typically less than revenue. There are prior claims to offset contribution by worker and suppliers. The counterpart in human capital, I said in Chapter 2, is maintenance consumption. I believed for years that this cost counted as a prior claim on pay, just as with the firm. I may have been the only person to think so since Quesnay and the physiocrats, although Mill and Sraffa might be interpreted that way. But who has thought what doesn't matter. Quesnay's idea is a mathematical possibility that must be addressed. I'll get there soon.

Human capital is inalienable. That means that its decapitalization simplifies to human depreciation. The firm's added possibilities of depletion and liquidation don't apply. The output of human capital is called work. Then (6.1) through (6.8), applied to human capital, give

$$\begin{aligned}\text{earned revenue} &= \text{pay} - \text{prior claims}\\ &= \text{gross realized work}\\ &= \text{realized work} + \text{recovered human depreciation.} \qquad (6.15)\end{aligned}$$

The pay rule argues that prior claims are zero and that all human depreciation is expected to be recovered in pay and work products as a norm.

Chapter 2 offered two logical proofs of the second point. The alternative to recovery is deadweight loss. Capital is discounted foreseen cash flow, and cash flow is realization in transfer or taste satisfaction. Deadweight loss, or unrealized depcatialization, is therefore implicitly unforeseen. Human depreciation, like plant depreciation, is foreseen from the start. Aging and mortality come as no surprise. It is therefore foreseen as realized in pay.

The second proof, stated in part by Becker, follows from the maximand rule. All behavior is maximization of perceived risk-adjusted return to the individual's total capital. This follows from definitions, not from axioms. There are no exceptions because there are no square circles. The rule says that no one invests in anything without expected recovery with interest. Recovery means recovery of depreciation. We do invest in human capital, of ourselves and our children, and consequently expect recovery of human depreciation by ourselves or them. It's that simple.

Other proofs looked to evidence and experience. I offered the parable of the boss and her secretary, which had been decisive in converting me from Quesnay's view. Let's go through it once more. Assume that investment in each has ended before the last year for each. First take the possibility that neither maintenance consumption (the supposed prior claims) nor human depreciation is recovered in pay. Then work and cash flow for each have simplified to realized work and pay. Human capital of each is remaining pay less the time discount. At the beginning of the last year, it is something less than one year's pay. If pay measured work, return to each (work/human capital) would be something over 100% per year. It would rise to 100% per day at the beginning of the last day, and 100% per second at the beginning of the last second. At the end of the last second it reaches infinity. Yet the portfolio assets of each reveal their rates of time-preference (return) as only a few percentage points per year.

This is enough to rule out the idea that pay recovers neither maintenance nor depreciation. Does it say which is recovered? It does if we look at the cases of the boss and her secretary separately. Each earns the same pay throughout, and the boss earns ten times more. By the beginning of the last day, the human capital and work of each is negligible. Pay is all depreciation recovery if I am right, or all maintenance recovery if Quesnay was right, or maybe both. The boss's pay, anyhow, remains ten times higher. Is that because her maintenance is ten time more, per Quesnay, or because her depreciation is?

The answer is easy. I concede that the higher-paid usually consume more. But not always, and anyhow not in proportion and not because they have to. I learned in the quartermaster corps that the consumption needs of the general and the private are not much different. The commanding officer, in the field, is expected to be the last to eat, the last to sleep and the first up in the morning. Maintenance consumption, as opposed to the rest, is what we need to keep up strength and vitality and performance. We can't make do with less. More pay is more motive, but need not be spent on more consumption unless by choice.

The boss and her secretary are paid to apply skills. They are in trouble if the worth of those skills doesn't cover their maintenance needs. But they will tap savings if it doesn't. Retirees need no money motive to consume. All they need is the means. The source of skills applied is human capital. The application is gross realized work. The difference between its human depreciation and realized work components matters because the maximand is net output (work) rather than gross. But it is not a difference in kind. Skill applied is skill applied. Pay is all depreciation at the last second for the same reason as with the mortgage payment. There is no balance left to earn interest.

This argues strongly that human depreciation is recovered in literal pay and transferred to work products. It also argues that maintenance is not. The problem is in the exact 10:1 proportion required throughout. Whatever was contributed to pay by maintenance recovery, on top of depreciation recovery, would have to hold the same ratio in order for pay to cover both. Experience shows this as unlikely in any case, let alone all cases. The boss and her secretary probably couldn't hold maintenance consumption to that ratio if they tried.

Another strong argument against the hypothesis of prior claims on pay is lack of a source. The claimant would be whoever other than the worker had paid for the maintenance consumption and needed to be made whole. Thus the employing firm would hold a valid claim if it had provided the maintenance consumption in order to enable the work. That would put the firm in the position of a farmer who must feed the livestock and must earn enough profit to recoup the cost. We went through this in the parable of Phil and Bill. But the employer firm does not advance the cost because it has no motive to do so. It knows that the worker will pay it anyhow if means allow. Where means don't allow, as in retirement without adequate savings, the worker looks to transfer payments from society generally rather than from the firm alone.

Now comes the evidence of age-wage profiles. This evidence is the substance behind the parable of the boss and her secretary. The evidence is apt. Wage generally means hourly pay, while "earnings" means yearly pay. Wage-earnings profiles show a rise with age, but peaking and reversing as workers reach their fifties or so. The reason is that they tend to work fewer hours. I consider pay per hour a better measure of human capital than pay per year. If someone is worth $30 per hour half time, my impression is that she would be worth $30 per hour full time. If she prefers to stay home, her leisure must give her that much psychic pay instead. Psychic pay cuts just as much ice with me.

My boss and secretary were cases preferring to work full time. Age-wage profiles bear out the scenario I imagined for them. They illustrate the logical certainty that human depreciation is expected to be recovered in pay, and support the convergence axioms leading from prediction to probable outcome. More than that, continuance of the 10:1 ratio through the last day tends to confirm that no maintenance consumption is recovered alongside human depreciation. If it were, age-wage profiles show that it would have to hold the same 10:1 ratio throughout.

Exhaust Pay

The present value and maximand truisms affirm that all including human depreciation is expected to be recovered in positive cash flow. Positive cash flow is transfer out plus exhaust. In human capital it is pay less plowback. Might some human depreciation be realized in exhaust? I thought all was when I also thought maintenance consumption was recovered in pay and work products. The boss and secretary parable turned my thinking around on that. But it doesn't follow that *none* is.

Some pretty clearly is. I argued that even suicide expresses the maximand rule. Deliberate self-maiming exists and expresses it again. Just as Citizen Kane destroyed his showcases because the fit was on him, some destroy their bodies. So long as the destruction is intended and *compos mentis*, it counts as economic behavior.

Are there sunnier examples? What about voluntary unpaid vacations and voluntary retirements? What if the boss and her secretary enter convents in mid-career? These choices surrender human capital on the face of things because they surrender literal future pay. But the psychic pay of leisure makes up for it. Otherwise we would have stayed on the job track.

Then some human depreciation is exhaust. Call the psychic pay for it "exhaust pay". It seems mercifully small in the big picture. I tend to neglect it in modeling for that reason, just as with invested consumption after full-time job entry. But I claimed logical certitude as to expected recovery of human depreciation in pay. I'd better not leave loopholes. There are none. Some of the pay is psychic, and some of the tastes satisfied are not pretty.

Tweaking the Axioms

My last argument reasoned from experience that we need no money motive to consume, and that pay tends to cover our maintenance needs. But that wasn't strictly in the axioms. I assumed a mortal and reproducing population strategizing for means to satisfy tastes, and more generally aims. I didn't say out loud that the population in fact survives. Now I do. Let's specify that the population has motive and means for lineage survival, whether in a group selection or kin selection sense. The means can be specified as skill sets, as an adult norm, sufficient to earn maintenance consumption needs for themselves and invested consumption needs for their young together. As to motive, I will specify at last that maintenance consumption is exhausted in satisfying our taste for survival. I already as much as assumed this in arguing that we need no money motive to consume.

This assumption of motive and means amounts to the biological imperative. It is hardly new to economics. It is the essence of Petty's overlapping generations model of 1662 in *A Treatise of Taxes.* It is the essence of the equilibrium wage theory of Smith in 1776 and Ricardo 1817, where pay converges to the level holding the work force intact. It is the essence of Malthus' population principle of 1798 and 1801, chosen by Senior as his first axiom in his *Outline* of 1836. It is the essence of the productive consumption theory developed from Malthus through Mill in 1848.

It lapsed from attention with the marginalist revolution beginning with Jevons and Menger in 1871, ironically the year of publication of Darwin's *The Descent of Man*, because the marginalists treated explanations of tastes as irrelevant. I happen to be a huge fan of the marginalists. But they've made their point. The microeconomics they founded is a rich and mature science. It needs no assumptions as to what explains our tastes. But macro is not doing so well. I believe that it must start over, and that a grasp of motives helps.

Quesnay's Idea

What Quesnay wrote, in his entry for "man" in Diderot's *Encyclopedia* of 1750, was

> "Those who make manufactured commodities do not produce wealth…they spend their receipts in order to obtain their subsistence. Thus they consume as much as they produce…and no surplus of wealth results from it."

Quesnay, like Petty a century before, came to economics from medicine. He was personal physician to Madame de Pompadour, and then to the royal family. His argument was that value is added in agriculture alone, not in manufactures. His conclusion that only landowners can afford to pay taxes did not enchant the landed aristocracy of Versailles.

Mill's *Essays*[1] includes

> "as much as is necessary to keep the productive worker in perfect health and fitness for his employment, may be said to be consumed productivity. To this should be added what he expends in rearing children to the age at which they become capable of productive industry."

Mill's *Principles* of 1848, which I quoted earlier, said the same:

> "What they consume in keeping up their health, strength and capacities of work, or in rearing the productive laborers to succeed them, is productive consumption."

Sraffa's parallel idea is expressed in his 1960 paper *Production of Commodities by Means of Commodities*.

My impression is that Quesnay's "surplus of wealth" means value added, and that he thought maintenance consumption should be deducted from revenue in finding it. Mill can't have meant what I think Quesnay did, in view of Mill's evident belief that output is investment plus consumption. Rather, when I like Quesnay argued that maintenance is recovered in pay work products, I thought Mill and Sraffa might have reasoned partway there.

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[1] *Essays on Some Unsettled Questions of Political Economy* (1844).

My belief then that human depreciation is exhausted is satisfying tastes seemed defensible then. I argued, sensibly to a point, that getting older meant surviving. I suppose I might still argue the same but for the parable of the boss and her secretary.

Another Look at Depreciation Theory

My pay rules, illustrated in the parable of the boss and her secretary, depends on my idea that depreciation and amortization are the same. Capital means present value of a typically finite series of forseen cash flows. As each year passes, present value of the most distant and most discounted one is lost. Depreciation/amortization is that loss. It begins at a maximum, and rises steadily as the end point nears.

I faulted national accounts for projecting an opposite trajectory from evidence of actual sales. I suggested a second look at likely circumstances and motivations. Depreciable assets are mostly structures and equipment. They tend to have been designed and modified for original users. Original users typically expect to own and operate them to the end. Then what is the likely driver of exceptions? Are secondary trades of plant and equipment likelier to be driven by pressure to buy or pressure to sell?

Human capital, anyhow, is exempt from both pressures. We're struck with what we have. We can invest more, as a homeowner might add a pool room, but we cannot sell. The years roll by, and present value of the most distant one's pay is lost.

Consider what happens when the expected end point changes. Say that the boss and her secretary, at the beginning of what was to be the last day, are both persuaded to re-up for another five years at the same pay. Human capital of each jumps from a little less than one day's pay to present value of five years' pay. But human depreciation of each is sharply reduced! At the beginning of what seemed the last day, it was substantially to be the whole of pay. Now it becomes present value of a day's pay five years off.

Another Look at Risk Theory

I made the point that the boss and her secretary reveal their time preferences in the security portfolios they assemble, and discount their pay at the same rate of return to reveal their human capital. Is that too simple? Does it overlook risk, or other factors?

I argued that human capital is the risker and higher-return factor because its exceptional versatility makes it as risky as we like, and because it is owned disproportionately by the risk-tolerant young. Does that make the bosses' or secretary's human capital riskier and higher in return than her portfolio assets? It does not. She molds all capital to her single risk-preference level at her current age. This is not to claim that age is the only determinant. Gender seems to count too, with males usually more risk-tolerant. Bob Trivers tells us why. And there is a wealth effect. We tend to tolerate more risk when wealth gives us more cushion against setbacks. But each of us, in present circumstances, has just so much tolerance. Tastes are properties of owners, not of assets. We assemble and modify assets of both factors to suit them. Human capital is not inherently riskier. It is riskier at the collective scale only because it is owned disproportionately by the risk-prone young. Each cohort, from youngest to oldest, molds it to suit that cohort's characteristic risk profile. The boss and her secretary each molds all her assets of both factors to her single risk tolerance at the time.

Tweaking the Life Cycle Model

I consider Ben-Porath's life cycle model of 1967 the most important paper in 20th century economics. I agree with all of it more or less. Now it needs clarification and completion.

All studies of human capital, as far as I know, effectively treat human depreciation as deadweight loss. Ben-Porath's model seems no exception. How does he model pay? He multiplies human capital by a productivity factor, and then again by the fraction marketed for pay rather than self-invested. That gives what I call realized work. Pay, if I am right, measures gross realized work. That is the main amendment I would propose for his model.

Ben-Porath's first three equations summarize what I call the growth truism (6.14). In my terms, not his, he models

human growth = invested consumption + self-invested work
– human depreciation.

He means positive self-invested work in the form of learning. Meanwhile the inalienability of human capital leaves its depreciation as its only avenue of decapitalization. Invested consumption corresponds to gross transfer in as meant in the growth truism (6.14c) while self-invested work is the same as proprietary output. Then (6.4c) applied to human capital could show as

human growth = invested consumption + positive self-invested work
– human depreciation,
= invested consumption + self-invested work
– recovered human depreciation,

confirming (5.2) and (5.3a).

Logic also seems to agree with Ben-Porath's interpretation that self- invested work continues late into careers, and that it must stop when time for recovery runs out. But I would specify that invested consumption stops, for modeling purposes, at full-time job entry or a little later to allow for initial job training.

This needn't follow from my adjusted axioms. It's just an impression from what I see. I don't agree with Schultz that outlays on medicine or worker relocation are investment. I see them as maintenance consumption preserving skills, not investment building skills. I don't see much avenue for investment in adult human capital except through textbooks and tuition. Some happens. I went back to school at the Conservatory myself, and I buy lots of textbooks. But I just don't see enough of it around me. Models must simplify. Mine would end invested consumption at independence more or less.

I would also model adult self-invested work as subliminal and costless job experience. I don't see it as taking a second away from work for pay. This again is meant to describe the usual rule only. Ben-Porath's model, I think, allows an impression that workers can choose between earning and learning by allocation of time. The quotes from Schultz in Chapter 5 described that as common. I just don't see much of it happening. Rather we tend to work fewer hours at the end of careers, not the beginning or middle when time for recovery of self-invested work remains.

I said that Ben-Porath's equations imply

$$\text{pay} = \text{realized work.}$$

I would substitute the pay rule

$$\begin{aligned} \text{pay} &= \text{gross realized work} \\ &= \text{realized work + human depreciation} \\ &= \text{work − self-invested work + human depreciation,} \qquad (6.17) \end{aligned}$$

as a norm or expectation. It isn't a guaranteed outcome because deadweight loss happens to human capital too. We may be hit by a bus, or lose our jobs in a slump, or be sent to prison or drafted into the army. The pay rule means that recovery is foreseen. If (6.17) were stated in terms of outcomes, "recovered" would have to be inserted before "human depreciation".

I believe that the case for this rule is very strong. The deadweight loss rule and the argument from the maximand rule give logical certitude that human depreciation is expected to be recovered in pay. The convergence axioms would then give actual recovery as a norm. The rule disallows the prior claims hypothesis, or possibility that maintenance is recovered too, from an accumulation of implausibilities that led me finally to rule them out by adjusting the axioms.

The life cycle model should also specify that human capital continues after retirement. I admit that this rules out the simplicities assumed in the boss/secretary parable. It continues because we earn imputed pay until the end, and human capital remains as its present value.

I would also model in my depreciation theory. Pay, like the mortgage payments, is all realized work (interest) at the start and all human depreciation (amortization) at the end. No other explanation of age-wage profiles will hold water.

A New Approach to the Pay Rule

I reasoned to the pay rule from the maximand and deadweight loss rules. Another approach can reach the same conclusion.

The total return truism finds

output = capital growth + cash flow.

(6.16) expressed Ben-Porath's equation as

human growth = invested consumption + self-invested work
–recovered human depreciation.

Cash flow is the flow discounted to present value. Tradition, since Farr in the mid-nineteenth century, has seen human capital as present value of future pay less what

I call invested consumption. I argued in Chapter 3 that this tradition is sound, although not logical certitude. I put it as

$$\text{human cash flow} = \text{pay} - \text{invested consumption}. \quad (6.18)$$

Work is defined as the output of human capital. Summing (6.16) and (6.17) now shows the pay rule

$$\text{work} = \text{pay} + \text{self-invested work} - \text{recovered human depreciation},$$

after cancellation of invested consumption.

This says that the pay rule is not so exotic after all. It has been staring us in the face since the Schultz-led consensus, with Ben-Porath, figured out the human growth equation a half a century ago. We had effectively recognized human cash flow as pay less invested consumption since Farr a century before, without putting it in those words. The total return truism does the rest.

A New Approach to the Y Rule

The marginalist tradition, which has dominated economic thought since its introduction by Jevons and Menger in 1871, has treated all consumption as the end point exhausting capital in satisfying tastes. It doesn't follow that marginalists were unaware that some is invested in human capital. At least three of the leading ones understood human capital well. That includes Leon Walras, a third co-founder of the marginalist revolution in 1874. I also mentioned Marshall, who agreed with Farr in disputing Petty, and Irving Fisher. But all three, and marginalsts in general, preferred to locate human capital outside the economy proper. Whether they spoke of labor measured in dollars per unit time, or human capital meansured in dollars alone, the larger factor was taken to arrive exogenously. It provided its services from outside and was paid their market value in return, as if on the books of a firm.

Marshall's pupil Keynes was thoroughly a marginalist, as are economists in general today and as am I. One of the features of his *General Theory* of 1936 was a kind of double-entry accounting for national product. Product was output and equivalently income. Output meant the sum of prices of final products produced within the year, while income meant the shares of that sum paid to the workers and investors producing it. His double-entry idea can be put as

output = investment + consumption = income = pay + profit. (6.19)

I showed why I disagree. But let us see how the total return truism might seem to have led to that inference if we leave workers or human capital outside the economy.

To treat them as arriving exogenously from outside is essentially to treat the national economy as if it were a single firm. Output inside is simply profit. Output outside is work, meaning creation of value by the workers. This gives the truism

output = work + profit,

confirming that total output is the sum of factor outputs.

So far, so good. But now Mill and Keynes and most tradition slip by arguing that pay equals and compensates all of work and nothing else. That's why (6.18) equates output to pay plus profit. Schultz and Ben-Porath and other students of human capital correct this in part by recognizing some work as self-invested rather than marketed for pay. My pay rule adds that pay recovers human depreciation as well as realized work. (6.19) should have reasoned

output = income = work + profit
= pay + self-invested work – human depreciation + profit. (6.20)

Where Keynes and Kuznets and macroeconomic tradition have been right is in reasoning that pay and gross profit, meaning gross of depreciation, sum to the "expenditure" spent on consumption and gross investment. This fact of arithmetic is the logic behind Say's law: pay plus profit are always enough to buy what is produced. We saw that this truism gives cold comfort when calamity or misjudgment make profit negative, as with the subprime houses of 2008. What it certifies, anyhow, is

$$\text{expenditure} = \text{pay} + \text{gross profit} = \text{consumption} + \text{gross investment.} \qquad (6.21)$$

We can subtract depreciation to reach

$$\text{pay} + \text{profit} = \text{consumption} + \text{investment.} \qquad (6.22)$$

Now (6.19) can be corrected as a whole to show

$$\begin{aligned}\text{income} &= \text{pay} + \text{profit} + \text{self-invested work} - \text{human depreciation}\\ &= \text{output}\\ &= \text{consumption} - \text{investment} + \text{self-invested work}\\ &\quad - \text{human depreciation.}\end{aligned} \qquad (6.23)$$

My main goal in this book has been to further the work of Solow in exogenizing growth, and also the work of Ben-Porath in endogenizing human capital as something produced within the economy. It was in that spirit that I derived the Y rule in Chapters 2 and 5 by putting human capital inside. I reached

$$\text{output} = \text{investment} + \text{human capital growth} + \text{cash flow.}$$

Here "*ex post net*" is understood before output and investment, so that investment means physical capital growth. (6.16) applies the growth truism to human capital. The cash flow truism shows that cash flow is net transfer plus exhaust realized in taste satisfaction. These are all *ex post* descriptions of realized outcomes rather than intentions. Together they give

output = investment + invested consumption + positive self-invested work
− human depreciation + net transfer + exhaust
= investment + invested consumption + self-invested work
− recovered human depreciation + net transfer + exhaust. (6.24)

This much is certitude. I now apply (5.9), which includes

consumption = invested consumption + pure consumption,

to reach the Y rule in its general form:

output = investment + consumption + self-invested work
− human depreciation + net transfer. (6.25)

The net transfer term disappears at the collective scale.

Although (6.24) is logical certitude infered from definitions, (5.9) and consequently (6.25) are not. I cannot rule out the possibility of a third kind of consumption recovered in work products as per Quesnay. I hope that my interpretation of age-wage profiles in the light of the boss-secretary parable has revealed that as improbable. The same holds for my derivation of the pay rule through Ben-Porath's equation and (6.18). (6.18), my inference that human cash flow equals less invested consumption, also trusts that all maintenance consumption is exhausted in satisfying tastes.

Summary

Accounting for human capital is much like accounting in a firm. Expected recovery of human depreciation in pay is logical certitude illustrated in age-wage profiles and in the boss-secretary parable. The pay rule is not entirely logical certitude, however, as it also asserts that maintenance consumption is not recovered. Age-wage profiles support this hypothesis too, as the constancy of pay differences to the end would otherwise be improbable. I made it the Darwinian axiom: maintenance is exhausted in satisfying our taste for survival.

Ben-Porath's life cycle was adjusted to express these features. Factor risk theory argued that human capital is the riskier and higher-return factor because capital of any kind takes on the risk characteristics of its owners and human capital is owned disproportionately by the risk-tolerant young.

The Y rule contradicts the Y = I + C equation, while the pay rule contradicts the dogma that output equals pay plus work. National accounts are founded on both. That means I can expect tough resistance. I have tried to prepare for it by adding a little more to each argument with each chapter.

Throughout this chapter, and throughout this book, I have bent over backwards to distinguish logical certitudes from falsifiable hypothesis. Economics needs both. But it needs to know which is which. The pay and Y rules, for example, are each certitude in part. The certain part is the heretical one. The present value and maximand rules follow from definitions, and compel *expected* recovery of human depreciation in pay. I then relied on the convergence axioms to infer actual recovery as a norm, not a invariable outcome, and on the new axiom of the biological imperative, as well as evidence from age-wage profiles, to infer that maintenance consumption is exhausted rather than recovered in pay as well.

CHAPTER 7: PETTY'S IDEA

How We Got to this Point

I said that if I had any sense, I would have left the worms in the can by pretending to believe (4.1) as Mill did and as the rest of the world seems to do. Charts and tables confirm his prediction in his and their terms as well as mine. But Piketty's argument was rightly criticized for leaving human capital out. Someone might or might not have faulted mine on the same ground if I had stopped at the end of Chapter 4. Whether they would have or not, every composer knows that the critic to hear is the one inside. What that critic told me was to gamble a case already won, open the can, and follow the argument and worms wherever they lead. That's why my title promised other surprises.

I risked following it past clarification into digression when I argued the pay rule. I since tried to justify the digression, if there was some, by showing how that rule could explain Piketty's data for pay/net profit ratios in the twentieth century. And I tried to show how the pay rule and depreciation theory combined, making pay all human depreciation and no realized work at the end, gives the only convincing explanation of age-wage profiles showing rising or steady pay as human capital grades smoothly to zero. Risk theory reinforced this argument by revealing time discount rates for human capital as those made plain for physical capital owned by the same ageing cohorts. Every step was an adventure, and every step led to the next one. But I opened other questions and cans along the way, and the same critic tells me to follow the worms a little farther.

I said that the cost of survival is adult consumption for the sake of investment in the next generation, that pure consumption is more or less the same, and that we will understand the maximand when we understand pure consumption. These threads lead into evolutionary biology, which reasons how traits are selected for lineage survival. The faithful need not take alarm. Although I mean natural selection, divine selection should probably do as well. We are all at peace with the fact that people and other creatures care for their young.

Economics and evolutionary biology are much the same. Helen Keller, born blind and deaf, might still have reasoned her way through much of both. Hamlet would have loved them. I love them most when they test the limits of logic, and consult the data only at the end. The theme from which both reason, as Herbert Spencer taught in the nineteenth century, is what he called "survival of the fittest." Another philosopher, Karl Popper, found fault with this idea a century later. Popper was one of those I mentioned who disapprove of truisms. I haven't read Popper, but gather that he thought it improper to define fitness as potential survival, and then measure it as survival. That objection is close to being understandable from an anti-truism viewpoint. But the reason why it is not quite a truism is instructive. Measurement implies an "empirical" world of data in external and observable reality. Spencer's insight, really his paraphrase and generalization of Darwin's, is not quite a truism because it carries the hypothesis that "potential" has an empirical meaning. Aristotle's idea that potency precedes and explains act is called causality. Adam Smith's friend and fellow Scotsman David Hume scarcely doubted causality, but argued correctly (I think) that it cannot be proved either by logic or by experiment. The fittest prove themselves such by surviving if and only if Aristotle was right. Natural selection simply means the untestable but little-doubted theory of causality.

Spencer or Darwin or Gertrude Stein might be faulted for insulting our intelligence by stating the obvious. That shoe would fit Gertrude Stein. But Spencer and Darwin, like the little boy in Hans Christian Andersen's *The Emperor's New Clothes*, were stating the obvious unseen. Andersen's point was that intelligence was not the thing lacking or what the little boy supplied. It was about how tradition and mind-sets and in-groups might sometimes need a look from outside. Peer review is not enough. Sometimes it perpetuates nonsense. The little boy was not a peer, but he could tell clothes when he saw them. ("Peer", as any theorist knows, means someone who pees on your theory.)

I confess that this book casts me as that little boy crashing the economic party, and maybe the evolutionary biology one too, in trust that outsiders might have better chances to spot the obvious unseen. What else was the pay rule? I derived it easily from doctrines already accepted, I think, and anyhow hard to refute. Those were the total return turism and Ben-Porath's equation for human growth. The maximand rule or deadweight loss rule would prove it as well. How could Becker have missed that what holds for investment in job training by employers holds for any investment by anyone in anything? How could students of the age-wage problem have missed the obvious solution? Investment implies expected recovery with interest, by the investor or a chosen donee, and recovery means recovery of depreciation. I belabor this point because tradition dies hard, and naturally tends to circle wagons under attack. I doubt that my surprise attack will meet the resistance Darwin's found. Darwin's met resistance founded on faith. I took pains to show that my version requires only selection for lineage survival, and that a benign Artificer might ordain the same.

Evolutionary Biology and Hamilton's Rule

Economics, meaning any quantitative rationale of choice, normally describes humans and human choice. That goes for this book too. But some treatments of economics including this one are meant to fit other creatures as well. My axioms have kept that in mind. The mortal and reproducing population need not be human. Much of the animal kingdom, I think, shows convergent tastes and predictions or acts as if it did. The biological imperative is meant to apply to all. All, as I see it, own capital of both factors. Even protozoans own ("monopolize") the nutrients they assimilate and the space they occupy. Humans are exceptional in their cultural accumulations of learning and technology shown in our secular (lasting) growth. But I did not make those features axioms.

I argued that economics tended to reason explicitly or implicitly from the biological imperative, meaning what I call "ends" in lineage survival, from Petty through Smith and Ricardo and Malthus and Mill, until the marginalist revolution shifted focus from objectives to the mechanics in supply, demand and price. Bioeconomics awoke a century later, largely it seems in response to the challenge of Hamilton's rule. Now I will look at it too.

My term "lineage survival" is unusual. It is meant not to take sides between "kin selection" and "group selection." The kin selection idea was another word for Hamilton's rule from his doctorial thesis in 1964. It said that genes encoding investment in close kin encode investment in likeliest sharers of those genes, and should tend to entrench and perpetuate themselves. His condition for investment was $r\rangle bc$. r here meant relatedness: ½ for offspring or siblings, ¼ for nephews or nieces or grandoffspring, and so forth. b meant benefit to the donee, and c meant cost to the investor. The sign > means "greater than". The cost and benefit were measured in fitness itself, meaning chances to survive and breed. But that too meant "inclusive fitness" where investing in kin counted as breeding when adjusted for relatedness. The idea was that I give up some of my chances if I can increase yours to my net genic advantage in the long run. Hamilton allowed for exceptions including meiotic drive, which sometimes forecloses gene competition. His rule prevailed because it made mostly good predictions. Humans and creatures in general usually care for their own young first, if they have any, and for closely related young if not.

Hamilton made it clear that cost c and benefit b in his hurdle $rb>c$ respectively meant fitness given up by the investor and fitness grained by the investee. He further made it clear that fitness could be measured as R. A. Fisher's "reproductive value" $V(x)$ published in 1930 and 1957. $V(x)$ meant likelihood at age x of reaching each successive age times expected offspring at that age. $V(x)$, or Bob Trivers' "reproductive success" RS, which simplifies $V(x)$ to expected remaining offspring, is implicitly constant at the population scale unless there is population growth (Fisher's "Malthusian parameter"). For creatures other than us, the parameter typically fluctuates around zero and group fitness holds about where it started.

Hamilton's rule, applied to diploids like us where closest relatedness r absent inbreeding is ½, forbids investment where fitness gained (benefit) is less than twice fitness given up (cost). I see no escape from the inference that fitness would double with each generation, or more to account for cases where relatedness fell below ½. I see no relief in an interpretation, say, that each successive generation cures this imbalance by investing only half or less of its fitness and letting the rest lapse. Fitness is likelihood of leaving descendants of equal fitness. It is not strictly conserved, because likelihood is generally not identical to outcome. There is *ex ante* and *ex post* fitness. But the *ex ante* kind is meaningless unless potency, in Aristotle's terms, is expected to converge to act. Hamilton's rule should not have escaped this critique for half a century. It clearly has merit, but needs some different expression.

Such a reformulation might treat rb/c as a maximand within practical constraints. We can see how it might be by looking at the context. Darwin's idea is a competition for breeding success. This biological imperative is a powerful predictor in nature. It predicts that traits are selected for successful reproduction to the exclusion of all else. Evidence is impressive. "Semelparous" creatures who breed only once and do not invest postpartum care, like salmon and soybeans, die within hours. An octopus mother breeds only once, cares for her young a few weeks, and dies as they disperse. Nature is on a tight budget. Resources wasted soon become resources lost to thriftier lineages.

Hamilton saw this. He was right in stressing the role of competition among individuals and individual heritable traits. Darwin did the same. One thing Hamilton's rule leaves out, which is not to claim that he overlooked it, is that traits and their genes best at *prioritizing* self-replication might for that reason hurt chances of *achieving* it. We know this happens. Human tradition everywhere resists and punishes nepotism when it crosses a line. Jane Goodall reported the same for her chimps at Gombe. I think I have seen it among the pack of dogs, led by my father's favorite "Sean", at Sutton Place. That would count as one of the practical constraints. Too little support for family over equally deserving others is seen as a fault, and too much as another.

The reason is obvious. Jack's ambitions for kin will eventually conflict with Zack's, just as with ambitions for food and nest sites and mating opportunities. Not everyone's firstborn can be king of the hill. Social creatures evolve agonistic rules to settle such conflicts peacefully. Losers in mating tournaments, or in contests where males display and females choose, usually survive to compete again next year. The contest is in the group interest because the traits of strength and skill proved in the winner will be those passed on. Our genes tell us to compete as best we can for the sake of a fair test, and to stop when the verdict seems clear. And soon enough it does. The quarterback tries his best for three downs to move the yardsticks, but trots to the sidelines on fourth down for the sake of another chance later. If genes can encode this farsighted strategy for those other kinds of competition, why not for nepotistic competition too?

For decades, biologists wondered why genes need so much selecting in species long established. Shouldn't earlier contests have selected the fittest genes once and for all, with no need for further ones but to screen out recent and harmful mutations? Shouldn't the best traits have become clear millennia ago? Why need males contest in tournaments or beauty contests every breeding season, with mostly the same contestants, when best genes ought to have proved themselves soon after the species began? Then there would be no genetic diversity except for recent mutations not yet screened out. Population geneticists such as Fisher, J. B. S. Haldane and Sewall Wright had written mathematical models showing that even the slightest selection pressures should drive a gene to fixity, and its rivals to extinction, within a few generations if selection favored it consistently. Their argument was Malthus' insight: breeding success is geometric. Yet there is rich allelic diversity wherever we look. There are some gene sites in some species where the most common allele holds frequencies under ten percent, and those frequencies are constantly shifting. The flux proves that losers are allowed mating opportunities too, though not as much, and leave young to compete in the next generation.

Hamilton explained why that could make sense in a paper published with Marlene Zuk in 1982. George Williams in 1976 and John Tooby in 1980 had argued that fittest genes in one generation might not be fittest in the next if niche pressures varied to counter current gene choices. Tooby had pointed to parasites and pathogens, particularly single-cell ones whose life cycle runs less than an hour. They could evolve new strains to outflank our old defenses and call for new ones. Hamilton and Zuk continued this theme. They suggested that genes might have long memories, put in human terms, and might have seen the same parasites and pathogens pull such tricks before. If some individuals in the host population still carried the antidote gene that worked the last time the same unexpected strain arose, or something close enough to it, hosts collectively could weather the threat if that antidote gene could be identified and spread fast enough. Then how? Hamilton and Zuk proposed that what winning males display in contests of singing or croaking or agility or symmetry, or bright colors in the right places, was possession of the genes needed to counter the *current* strains of pathogens and parasites. Losers in the same contests carried genes that had proved best against strains of the past and might come back in the future. Nepotism practiced by winners would speed up the spread of the current antidote. But losers carried genes that had worked against other strains that might recur. A way had to be found to keep all those potential antidotes somewhere in the medicine cabinet. Current losers had to be saved for later. Gene diversity was the key to group survival in the long run. The quarterback trots to the bench on fourth down because that is better for himself and the team than being carried to the hospital. He realizes that other players are best for punts or field goals or defense until he gets the ball again. Selection pressures do *not* favor the same traits and genes every time.

Hamilton's Parasite Theory

My take on Hamilton's 1982 paper, which I consider his masterpiece, is a blend of his thoughts, Bob Trivers' from a decade before, Richard Alexander's, and maybe mine. Mine sees a population arranged in local "demes" which intrabreed in most cases for best adaptation to local pressures including pathogens and parasites. A local strain to which the local deme is adapted might spread to other demes which are not. Hosts in the invaded demes become sick. Female ones there intuit the degraded conditions, breed less often, and breed mostly females (mothers can choose) because males with their now ill-adapted anti-parasite (histocampatability) genes will find few willing mates. This begins the part from Trivers. I'll come to Alexander's later.

Mothers in the source deme see an opposite picture. Conditions are not necessarily better than before, but they are better than in the invaded demes. They intuit this, breed more often, and breed mostly males. The males migrate to those invaded demes, carrying histocompatibility genes pre-adapted to the invaders, and find willing mates there if they can show the signs. The idea that mothers choose to breed mostly males in prosperous conditions is the other half of Trivers' idea. The idea that the invading parasite and the males with antidote genes might tend to originate from the same deme may be mine.

That presupposes that females can trust the signs. Nature makes sure they can. She provides resistant males with hard-to-feign ones to prove it. This was one of Hamilton's key insights. His idea has been called the "truth in advertising" theory. Symmetrical antlers, deep croaks, accurate songs and bright colors where they should be tell the females whose genes can be trusted. Parasites and pathogens would fake them in afflicted host males if they could. It seems they can't.

Hamilton, I believe, had solved three nagging puzzles at once. Why does nature waste resources on beauty displays that seem at first glance to hinder fitness? A peacock's tail feathers are an encumbrance in running from predators. And why give the expensive displays mostly to males? Why do males exist at all in species where they contribute genes but no care?

We just saw the answer to the first. Answers to the second two again build on an insight of Trivers in 1973. Males produce cheap sperm carrying genes alone. Females produce eggs packed with costly nutrients. A male can pass genes to many descendants through many mates if they approve his signs. That speeds up the fight against parasites. Nature evolved males and their self-promoting signs and their contests for fastest spread of antidote genes to catch up to shifts in parasite load.

Where Do Losers Go?

A key point in the Hamilton-Zuk theory is that losers' genes in the beauty contest are typically not driven to extinction. They are driven to low frequencies until needed again. Kin selection, up to a point, helps maintain genic diversity by preserving current losers within the gene pool. Selection pressures punish and restrain kin selection when it conflicts with preservation of other genes whose time will come again. I met Hamilton at a conference in Squaw Valley, where Bob Trivers had helped us attract him, and told him this reason why I thought his 1982 paper helped complete and qualify his 1964 paper. He was the absent-minded professor to perfection. Moody, distracted, profound. He smiled, a rare thing for him, and said "It's been a long search."

This explains what I mean by lineage survival or fitness. Much of this book assumes its maximization even among modern humans, who create our own urban environments in place of the ancestral savanna for which we were adapted. And much of economic history, although written in cities by city-dwellers, appears to assume the same. Chapter 2 listed some examples. Let's review them. There was Petty's of 1662. The similar equilibrium wage theories of Smith and Ricardo expected pay to converge to the level maintaining and replacing the work force, which is trusted to spend it on both. Malthus' population principle in 1798 and 1801 added the mechanics. Nassau Senior made that principle his first axiom in his *Outline* of 1836. The biological imperative lapsed from attention when the first generation of marginalists, led by Jevons and Menger, with Walras soon to follow, thought it unscientific to explain or justify tastes. It reemerged a century later in bioeconomics, much of which looked for economic implications of Hamilton's rule. We will see how it might clarify pure consumption and the maximand.

Enlightened Kin Selection

Hamilton's rule needs completion because the quarterback and his genes have figured out that the bench is better than the hospital. What really happens, I think, is a long-range example of Bob Trivers' "reciprocal altruism" of 1971 as generalized by Richard Alexander. Bob wrote that creatures might invest in non-kin if the investment were expected to be repaid with interest. Alexander added that the repayment could be to the investor's kin with equal genetic benefit if Hamilton's hurdle $rb > c$ were cleared from the investor's perspective. The quarterback yields to special teams on fourth down, and they to the defense until possession changes again, for the best interests of each and all in the long run. The interest they receive in turn for deferring to non-kin is the cost of maintaining themselves on the bench. It does not accrue and compound because it is paid out continuously. It is an insurance cost that each temporary winner dares not trim. Group selection is enlightened kin selection.

Three or four decades ago, this much acknowledgement of group selection would have met more resistance than I expect now. It shouldn't have. Half the beauty of the Hamilton-Zuc scenario is in explaining allelic diversity as a result of agonistic rather than lethal competition. Zack and Jack and their genotypes are rivals now because they are teammates in the big picture.

Kin selection is a help until it crosses the line and becomes a hindrance. Some mothers in the source deme will carry higher frequencies of the antidote gene than others. They will tend to be healthier, and so able to invest more energy in more young. If all mothers invest preferentially in their own, or maximize Hamilton's standard $rb > c$, healthier mothers will produce more young with higher doses of the antidote genes, while sicklier mothers will produce less with less. Here it is females who compete to prove the same better genes that males just proved in the tournaments or beauty contests.

The race against parasites speeds up again with Trivers' fine insight about healthier mothers choosing to dial up the ratio of sons to daughters ("primary sex ratio"), and to expand the reproductive period at both ends with shorter birth spacing for more male offspring still. (Some of this may be my idea rather than his.) Nature proves best current genes twice. Fathers prove them by duking it out or strutting their stuff. Mothers carrying the same best genes prove it by winning the breeding contest against other mothers after.

The *ex ante*/ *ex post* distinction counts as much in biology as in economics. Here it accelerates the selection process. Offspring carrying the antidote gene to meet current parasites will generally not on that account cost more *ex ante* invested consumption to raise. If they are males, who can turn that advantage into many offspring, the *ex post* value of that same investment can be far higher. The converse works for offspring lacking the gene. Their mothers can make the best of it by producing females who will find breeding opportunities anyhow with mates carrying the gene, since she knows which they are and males always have cheap sperm to spare, and will so keep their own genes in the gene pool.

Parasites got the last laugh by killing Hamilton on research in Africa a few years after I met him. I never knew well enough to call him Bill. Bob Trivers called him the deepest thinker in the world. That couldn't be wrong by much.

Parasites and Demes

Ernst Mayr, Bob Trivers' doctoral advisor at Harvard, defined a deme as a race or subpopulation that intrabreeds at least 95% of the time. I hypothesize that it does so, in some cases, to maximize frequency of a histocompatibility gene which is an antidote to the local strain of parasite or pathogen. This idea could complement the Hamilton-Zuc parasite model nicely. It would give a safe home to which both gene and parasite could retreat until their times come again.

Period of Production Theory

Back to economics. Chapter 4 mentioned John Rae as a contributor to what later developed into Mill's free growth theory. Rae's book, published in 1834, also begins what was called period of production theory. The idea was that production took time, and that profit compensated the investor's patience over the production period. Senior, who had sent Rae's book to Mill, adopted this idea in his own better-known *Outline* in 1836. Rae's book itself found few readers, despite its warm endorsement by Mill in his own *magnus opus* of 1848. Jevons adopted the idea from Senior in 1871, and Boehm Bawerk from Senior and Jevons in his book of 1889. Boehm Bawerk soon learned of Rae's work, and dedicated later editions to him. Period of production theory thrives today in the Austrian School, which had been founded by Boehm Bawerk's teacher Carl Menger in 1871. (Menger was the guy who squabbled with Schmoller in Chapter 2.)

It has found little favor elsewhere. The period seemed impractical to define or measure, and so gave little predictive value. Joseph Schumpeter, a student of Boehm Bawerk who disagreed with him on this point, argued in 1911 that the period of production is zero; capital is present continuously. Frank Knight, who had anticipated Schultz in realizing that some consumption is investment in human capital, argued as Schumpeter had.

But the theory is true by definition. Any rate is the inverse or reciprocal of a period. The inverse of 4% per year is 25 years. Return is the ratio of net output to capital producing it, meaning the rate of production, and its reciprocal is the period of production. Where the critics were right was in finding a lack of clarity and predictive value in the theory. Where does it lead? Rabbits and redwoods have different periods of production, at first glance, but should nonetheless agree in return if in risk. Jevons wrote that he meant production of the “wage fund” as a whole, meaning the universe of consumer goods. But he pointed to wine and timber as examples to help pin down the period. Boehm Bawerk picked nine years for no reason I can see.

All went wrong by considering physical capital only. The factors blend into each other; physical becomes human capital through invested consumption, and conversely when human depreciation is recovered in products. The generation length gives the replacement period for total capital if total capital is interpreted as fitness and if all fitness of each generation is passed to the next.

Jevons and Boehm Bawerk assumed growthlessness for simplicity, and would have realized that they were modeling only the replacement component in net output. Boehm Bawerk’s contribution, anticipated by Petty, was his insight that time preference rate explains rate of return by pricing the capital denominator, and not the reverse. This had not been clear in Rae or Senior or Jevons. I give all four high marks for a near miss. But they could have come closer. Remember that Senior’s first axiom had been Malthus’ population principle. He and the others would also have known of Petty’s human and total capital idea, which was occasionally revived and critiqued. They didn’t quite connect the dots.

Next Generation Theory

Petty wrote *A Treatise of Taxes* in 1662. The whole title continues to about as many words, counting ampersands, as pages in the book or pamphlet. His son tells us that Petty dictated his books overnight to secretaries who slept by turns. It is easy to believe that Petty didn’t need much sleep. He was a go-getter who had sailed to

Ireland as chief medical officer to Cromwell's ironsides, stayed on to survey the Irish land with which Cromwell would pay his troops, and then got Parliament's approval to invest in that high-risk land to make a fortune. It is rare for a man of practical gifts to be a deep thinker too. Petty, like my father, was both. His *Verbum Sapienti* of 1664 was first to apply the ancient capitalization formula to both factors, meaning workers as well as tradeable things, and so originated the concept of human capital as present value. He applied this insight there and his *Political Arithmetick* in 1676, and again in *The Total Wealth of England* in 1683, to measure the total wealth of England including human capital. That makes him the father of national accounts. But his greatest achievements, I think came in *A Treatise of Taxes*.

Chapter 4, paragraph 9 of that book begins with

> 19. Having found the Rent or value of the usus fructus per annum, the question is, how many years purchase (as we usually say) is the Fee simple naturally worth? If we say an infinite number, then an Acre of Land would be equal in value to a thousand Acres of the same Land; which is absurd, an infinity of unites being equal to an infinity of thousands.

Petty clearly recognizes that time preference, meaning our taste for impatience, explains productivity, or ratio of output to capital, rather than the other way around. This powerful and counterintuitive insight is usually credited to Boehm Bawerk in 1889, who showed that it is true for man-made things as well as land. The utility or usus fructus being a given, we bid less for the land or other capital producing it if we are less patient, and more if more. Bidding less for this denominator of rate of return bids that rate itself up if the numerator is a given, and conversely. That's why riskier assets offer higher return. Petty's *reductio ad absurdam* of a hypothesis of infinite patience is obvious in hindsight, but may not have been written down before. Petty continues:

> Wherefore we must pitch upon some limited number, and that I apprehend to be the number of years, which I conceive one man of fifty years old, another of twenty eight, and another of seven years old, all being alive together may be thought to live; that is to say, of a Grandfather, Father and Childe; few men having reason to take care of more remote Posterity: for if a man be a great Grandfather, he himself is so much nearer his end, so as there are but three in a continual line of descent usually coexisting together; and as some are Grandfathers at forty years, yet as many are not till above sixty, and sic de eteteris.
>
> 20. Wherefore I pitch the number of years purchase, that any Land is naturally worth, to be the ordinary extent of three such person their lives. Now in England we esteem three lives equal to one and twenty years, and consequently the value of Land, to be about the same number of years purchase. Possibly if they thought themselves mistaken. . . .(as the observer on the Bills of Mortality thinks they are. . .)
>
> 21. . . . But in other Countreys Lands are worth nearer thirty years purchase, by reason of the better titles, more people, and perhaps truer opinion of the value and duration of three lives.
>
> 23. One the other hand, Lands are worth fewer years purchase (as in Ireland) . . . by reason of the frequent rebellions. . ."

The "other Countreys" could include France and especially Holland, then models of prosperity. Petty had made his fortune in Irish mortgages, and knew the years purchase there.

But the argument is a puzzle. There is a focus on longevity and mortality, as if the generations are providing for old age. But Petty's overlapping generations model cannot be much like Paul Samuelson's of three centuries later, where a generation of productives leaves a nest egg for retirement. Samuelson's productives are replenished exogenously, with children left to the imagination. Why would Petty have mentioned their ages? And retirement at age 50, as a norm, would have made no sense to Petty or his readers. The grandfather will stay in harness.

The one and twenty years could mean remaining life expectancy at age 50. But Petty could easily have spelled that out, or the implied 71 year terminus. He does spell out the ages of the three generations. Their average difference in age rounds to 21 years.

Petty's readers, like Smith's and Ricardo's after, would have taken it for granted that each generation provides for the next. "Few men having reason to take care of more remote posterity" would have registered in the context of that provision. "Posterity" usually meant and means descendants.

His description, like mine, is incomplete. He may mean that life expectancy is also a factor in calculating the years purchase. If so, he apparently leaves that thought to be followed up later. There is also room to argue that the grandfather looks two generations ahead, so that the years purchase becomes 42 years. But that would give the usus fructus at 2.3%. All the rates Petty reports elsewhere in the tract are much higher. One generation length is what he seems to apply. My reading is that the grandfather provides for the grandson by passing all to the son.

Petty's overlapping generation insight has been one of his least noticed, just as with Mill's on output growth preceding and explaining capital growth. I first read of Petty's idea in a collection of Lionel Robbins' lectures at London School of Economics delivered in 1979-1980, but published in 2000. I learned from these lectures that Gustav Cassel had published the same idea in his *The Nature and Necessity of Interest* in 1903. I hunted that down. Robbins misremembered in telling his students that Cassel had arrived at the idea independently. In fact Cassel and Robbins both quote the same excerpts from *A Treatise of Taxes* that I just did. Cassel inferred that interest rates cannot stably be less than 2% per year.

I arrived at the same idea independently, anyhow, and published it in *Social Science Information* in 1989. To date it is my only publication in a refereed journal, and remains uncited as far as I know. Alan Rogers, a biologist at University of Utah, published almost the same idea in 1994[1] and 1997[2]. Neither of us knew of Petty or Cassel or each other. Both of Rogers' two papers are included in my appendix. Petty's great idea has otherwise remained unnoticed as far as I know.

His idea in modern terms comes from the same ancient capitalization formula. Sumerian temples knew how to evaluate land as well as mortgages and annuities by discounting to present value. In the simplest case, where cash flow is expected to hold constant forever, the logic begins with the definition

$$\text{cash flow rate} = \frac{\text{cash flow}}{\text{capital}} \; .$$

Algebra allows

$$\text{capital} = \frac{\text{cash flow}}{\text{cash flow rate}} \; . \qquad (7.1)$$

Years purchase, given those simplifying assumptions, meant

$$\text{years purchase} = \frac{1}{\text{cash flow rate}}, \qquad (7.2)$$

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[1] *The Evolution of Time Preference*.

[2] *Evolution and Human Choice over Time.*

Suppose for example that cash flow rate is known to be 4%. Using (7.2), we would figure

$$\text{years purchase} = \frac{1}{4\%/\text{year}} = \frac{\text{year}}{4\%} = \frac{\text{year}}{4/100} = \frac{100\,\text{years}}{4} = 25 \text{ years.}$$

That allows (7.1) to be reexpressed as

$$\text{capital} = (\text{cash flow}) \times (\text{years purchase}). \qquad (7.3)$$

Where cash flow and cash flow rate are assumed constant over time, they become identical to profit and rate of return. Sumerians realized that return is the universal maximand, three millennia before Turgot wrote that down, and that competition tended to equalize it to a current market norm. Then it would also equal years purchase.

Petty was searching for the rationale of years purchase, and found it in the generation length. Petty's idea I think, and mine anyhow, could begin with

capital = means of accomplishing goals= means of lineage survival= fitness. (7.4)

Nature's way is transmission of all fitness, meaning total capital for humans, to the next generation. Nature cares just as much for later generations, but trusts each generation of immediate descendants to know best what their own immediate descendants will need for that long-range goal. Each passes the baton and retires. We invest everything in the next generaton precisely because we care about the ones after. Hamilton's rule reflects this reality. Grandoffspring are only ¼ related to donors, while offspring are ½ related. Hamilton thus predicts grandoffspring to receive investment only when benefit/cost ratio is double. My own analysis allows more role for group selection, without saying how much, and shifts attention from who benefits to when.

Petty's idea, if I understand him, is

$$\text{years purchase} = \text{generation length} = 21\text{years}, \qquad (7.5)$$

which would give

$$\text{cash flow rate } \frac{1}{\text{generation length}} = \frac{1}{21 \text{ years}} = 4.7\%/\text{year}. \qquad (7.6)$$

This would tally well enough with rates of return and interest rates as Petty knew them.

I would adjust Petty's estimate of the generational length. Petty's primogeniture model may have been true to law and custom for land inheritance, but it is not true to biology. I prefer R. A. Fisher's[3] method equal-weighting all births from first to last, and equal-weighing ages of both parents at each birth. We have some evidence that the maternal generation length in recent decades, by that method, has run near 26 years over recent decades. If fathers are five years older on average, Fisher's method would arrive at 28.5 years. Rogers found 28.9 years from other sources. Then (7.6) would give

$$\text{cash flow rate} = \frac{1}{28.5 \text{ years}} = 3.5\%/\text{year}. \qquad (7.7)$$

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[3] *The Genetical Theory of Natural Selection* (1930).

All this has assumed has assumed constant cash flow indefinitely. That would imply zero growth. Only under zero growth do output and rate of return simplify to cash flow and cash flow rate.

Now let's model growth in. I divide the Y rule by total capital, as in Chapter 4, to get

$$\frac{\text{output}}{\text{total capital}} = \frac{\text{total capital growth}}{\text{total capital}} + \frac{\text{cash flow}}{\text{total capital}},$$

or more compactly

$$\text{rate of return} = \text{growth rate} + \text{cash flow rate}. \tag{7.8}$$

At the collective scale, cash flow rate simplifies to pure consumption rate. That would be written

$$\text{rate of return} = \text{growth rate} + \text{pure consumption rate}, \tag{7.9}$$

as in Chapter 4. Then (7.6) through (7.9) allow

$$\text{rate of return} = \text{growth rate} + 3.5\%/\text{year} \tag{7.10}$$

at the collective scale.

(7.10) would be wrong if growth rate were a function of cash flow rate. I said that politicians, and even economists to a degree, teach that faster growth needs consumption restraint first. That corresponds to cash flow restraint in (7.10). Free growth theory says such restraint doesn't happen. Data say the same. I apply the same idea in next generation theory.

My 3.5% is a rough estimate. What counts is the generation length. The length was probably higher, and the rate lower, before medicine and sanitation lowered mortality rates, and let two or three births per couple meet the need for population replenishment.

The cash flow or pure consumption rate modeled at 3.5% might also vary for reasons other than changes in the generation length. My charts show the pure consumption/total capital rate as higher in the middle part of the twentieth century as people drained capital reserves to keep up consumption in times of world-wide depression. I'll say more about these reserves.

First Interpretation

Next generation theory says in effect that R. A. Fisher's version of the generation length, not Petty's primogeniture version, gives the period of production of total capital. We would miss the point if we focused on the period production of human capital separately. *Total* capital is our means of lineage survival. This reinforces my theme that human capital does not mean humans. It means skill sets priced at present value of foreseen cash flow. Skill sets are not enough for lineage survival. We also need things. We should not fall into the trap of surplus value theory, which had been taught by communists for decades before Karl Marx joined their ranks, in supposing that skills make things. It is only half the truth. Skills plus things make skills plus things as the generations repeat.

Nor should we make the mistake of supposing that the generation length begins and ends uniquely from birth to birth, so that the remaining period of production grows shorter over adult life and the time discount rate steeper. The period of a cycle is the same at any point. The young, simply by maturing, are already investing in their counterparts in the next generation. Each cohort (same-age group) invests effectively in its immediate descendent. Eight-year-olds are investing in the next generation of eight-year-olds, and so to the end. That's why Fisher's version of the generation length is best. It prioritizes each cohort and gender without judgment as to which matter more. The period of production gives our patience horizon. The horizon and its reciprocal, the pure consumption rate, both hold the same at any age.

Cash Flow and Risk

The maximand rule notes that time preference and return vary with risk. Return is growth rate plus cash flow rate. Is variance with risk captured more in one of these two components than the other?

We might intuit that riskier and higher-return assets grow faster on average, over enough time for the bumps of risk to even out. But if that tended to be true, the universe of assets would grow progressively riskier over the decades and centuries. That is not my reading of history. My impression is that smoother and rockier periods come and go without overall trend. In the world we know, then, it is cash flow rate rather than growth rate that varies from asset to asset with risk.

For illustration, consider factor risk. I argued that human capital figures to be the riskier and higher return factor because assets tend to reflect the risk appetites of their owners. The young are more risk-tolerant, and own human capital disproportionately. If this higher return were reflected in higher growth, rather than in higher cash flow, the ratio of human to physical capital would tend to rise steadily over the millennia. Most readings have tended to see it the other way around. I myself favor the neutral assumption that the factors keep pace. Then cash flow rate becomes higher for human than physical capital, with 3.5% the cap-weighted average.

Consider also the history of corporate leverage. Equities are riskier because bond interest is paid first. If equities grew faster, however, leverage would constantly decline. That is not what we see.

This inferred concentration of risk premium in cash flow rate is convenient for testing. Growth and return are two of the most closely followed variables in economics. We have no direct measure of the pure consumption rate, or cash flow rate at the collective scale. Nor have we any direct measure of growth and return to total capital at any scale. But we have a good idea of average return and growth and cash flow to securities and business assets. By the maximand rule, return to human capital should be the same but for differences in risk. I model human capital as somewhat riskier, for reasons just given, and human capital is the larger factor. Then if I am right in placing the risk premium within the cash flow component of return, and in estimating average-risk cash flow rate at 3.5%, cash-flow rate to the business sector as a whole should be somewhat less.

Next generation theory predicts at the collective scale. Collective return is implicitly average return, and that means average-risk return. My reading of history, which rules out progressive growth of higher-risk assets at the expense of lower-risk ones, simplifies that to average-risk cash flow plus whatever collective or average growth happens to be at the moment.

Don't Grandparents Invest?

Next generation theory assumes that each generation invests all its capital of both factors in the next within the generation length. We expect it to do the same in turn. We care about grandoffspring too, but serve them best by trusting and enabling their parents only.

A first reaction is that this denies the obvious. Humans today, in advanced countries, normally live to nearly three times the generation length. (3 x 28.5 = 85.5). Even retirement at age 65 comes eight years after twice that length. And job number one for grandparents seems to be helping take care of grandchildren. Doesn't that falsify next generation theory?

Note quite. Retirement typically means dependence on savings or subsidy. The parental generation subsidizes both the young and the old. Retirees can be interpreted to some extent as hired though willing caregivers paid for by parents.

That explains part. The rest, I think, is best explained as replenishing a capital reserve. Nature builds up reserves in good times and depletes them in bad times. A rise in longevity from what is normally needed for lineage survival is a rise in human capital reserves. Human capital is the most versatile kind. We geezers have lost a step. But we remember how it's done. We particularly remember how parenting and homemaking are done, since those change least with technology. Julius Caesar's nanny, with a few pointers, could probably fill in as a nanny today. If the parental generation were pulled away to fight a war, or rebuild after a catastrophe, we oldsters could keep up the home front.

Free growth theory, abundantly proved in the data, is essential to next generation theory. What each generation invests in the next is all its fitness (total capital). All *ex post* growth, up or down, is added or subtracted for free. Catastrophes and windfalls are the random kind of free growth. Tech gain is the accumulating "secular" (of ages) kind. I wouldn't put it past nature to have learned that sustained growth means rising risk. She could adjust with reserves. We may be selected (a nicer word than programmed) to build human capital reserves intentionally, whether or not seeing nature's motives for the buildup as distinct from our own, when real wealth doubles with every generation.

That intentional or *ex ante* part would mean investment in the reserve. It isn't targeted to the grandoffspring generation, because they aren't expected to draw it down unless needed. All the rest of the buildup of human capital reserves in lifespan prolongation is best explained as random free growth if my interpretation holds water. Next generation theory is not contradicted because it describes cash flows only. It treats all growth at the collective scale as free and exogenous.

Testing Next Generation Theory

The proxies for the pure consumption rate (Schultz' pure consumption over total capital) in security markets would be dividend yield for equities, and interest for debt claims. Ibbotson Associates' SBII (2012), Chapter 4, shows average real interest on U.S. corporate bonds as 3.0% over the period 1926-2011. Real corporate dividend yield rate over the period can be estimated from the same source at about 2.9%. Jeremy Siegel's *Stocks for the Long Run* (2002), Table 1-2, reports data extending back to 1802. Real return over the period 1802 – 2001 is shown as averaging 3.5% for long-term governments, and 2.9% for short-term governments. Corporate bond returns would have run somewhat higher.

Global Financial Data shows stock market information for 95 countries. Data for U.K., U.S., Germany, Australia and France begin from 1701, 1801, 1870, 1883 and 1896 respectively. My charts and tables, and my website *Free Growth and Other Surprises*, show this information along with evidence for free growth.

The eighteenth century is represented by U.K. alone. U.K. then showed real price return, dividend yield and total return at 21.4%, 7.9% and 29.3%. Volatility of dividend yield was exceptional. From 1801 forward, U.K. averages for these flows were 2.2%, 4.2% and 6.4%. U.S. figures from 1801 forward were 2.9%, 5.3% and 8.3%. *Global Financial Data* also shows collective flows for Europe and the world since 1926. Here the figures were 3.3%, 3.9% and 7.3% for Europe, and 3.5%, 3.8% and 7.3% for the world.

Modeling of the pure consumption rate before the emergence of security markets could refer to the history of interest rates alone. Interest is rate of return to senior claims. Rate of return to any claim is realization by investors net of all expense.

Investors as to interest means lenders, not borrowers. Interest rates published historically are rates borrowers are contracted to pay. Interest rates realized by lenders are less for two reasons. There are friction costs of due diligence, contracting and collection. Default costs, slight when times are good, can be catastrophic when times are bad.

Homer and Sylla describe normal contracted rates, not realized rates net of those costs, as 10% – 40% in Sumer and Babylonia, 6% – 18% in ancient Greece, 5% – 24% in Egypt, and 4% – 12+% in Rome and the Byzantine Empire.[4] After higher rates in the dark ages, European mortgages and commercial loans found the range 7% – 25% in the thirteenth and fourteenth centuries.[5] The range settled down to 4% – 14% in the sixteenth century,[6] and to 3% – 10% by the seventeenth and eighteenth[7]. The authors comment:[8] "…interest rates declined during much of the later Middle Ages and Renaissance. The earliest short-term rates quoted were somewhat higher than the last and highest of the western Roman Legal limits. They were not too different from early Greek rates and were within the range of Babylonian rates… The later Renaissance rates were well within the range of modern rates and the lowest were far below modern rates in periods of credit stringency." Merchants of Venice in Shakespeare's time and long before borrowed from banks, not from Shylocks, and at rather lower cost than merchants of the twentieth century.

Economics and Biology

Bioeconomics has meant economics informed by biology. I argued that this describes much or all of classical economics from Petty through Mill, then lapsed when the marginalists preferred to do without any explanations or justifications of tastes, and revived a century later to explore Hamilton's rule.

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[4] *A History of Interest Rates*, Rutgers, 1996, Table 4.

[5] Ibid. Tables 6 and 7.

[6] Ibid. Table 9.

[7] Ibid. Tables 10 and 14.

[8] Ibid. Chapter 10.

I too reason from biological axioms, and from much the same ones implicit or explicit in the classical period. But I end up framing ideas of biology in the language of economics rather than the opposite. I begin with

total capital = means of ends = means of replication = fitness,

where fitness is understood as a stock. The concomitant flow and rate would be output (creation of fitness/total capital) and return (ratio of the two).

Free growth theory gave the inference

optimum *ex ante* output = optimum controllable output
= exact offset of pure consumption, at the collective scale.

Next generation theory specified the period of this exhaust and recovery as the generation length.

Consider Hamilton's rule in this context. All *ex ante* output, continuing steadily at the generation rate, must be invested concurrently in the next generation or stored for later investment within the deadline. It is the problem of Brewster's millions. Adults must invest or store as efficiently as practical (the maximand rule) before the output means has slipped by. And the more stored instead, the more pressure to invest later within the deadline. Time left for investment is another of the practical constraints on maximization of rb/c.

What I sense is a watering down of Hamilton's rule from what seemed logical compulsion a few decades ago to something more like a target of opportunity. A prediction maximizing rb/c has proved its value as a useful rule of thumb. I suggested why some nepotism might be more adaptive than none in my review of the Hamilton-Zuk parasite theory. It's about giving all genes a fair but speedy trial.

The quarterback gets three downs, and the batter three strikes, before they go back to the bench. Some nepotism directs healthier mothers to invest in more and healthier offspring, and sicker ones conversely, long enough to demonstrate which is really which. Males passing the test carry the signs to prove it. Females choose them to spread the antidote gene to the whole population. Losing genes and losing parasites retreat until their time comes again.

Summary

This chapter trades my wannabe economist hat for my wannabe biologist one. Herbert Spencer called those fields the same at bottom. I never read Spencer, and know him mostly from Bertrand Russell's books on the history of philosophy. Spencer rates a subchapter there. Yet he was an autodidact with less training in either field than mine. He even had less training in philosophy than mine. He was a philosopher all the same, by Russell's tough standards, and knew that logic comes first. Data eventually prove their worth when it's time to test. The data I've found fits net generation theory more or less. What I really have on, all the while, is my wannabe philosopher hat.

Popperians make no sense. Are we supposed to find that a rose is *not* a rose? Or that all reasoning from definition is as transparent as that example? Wiles' proof of Fermat's last theorem ended a search that took some pretty bright minds three centuries. My best guess would be that Popperians confuse the concepts of logic and question-begging. They are opposite. Logic (reasoning from definition) means taking out no more than you put in. Truism or tautology usually means obvious examples of the same, but sometimes includes subtle ones too. Question-begging means taking out what you never put in[9].

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[9] Circularity is question-begging which claims to take out as inference what it put in as assumption. Assumption that Socrates is a man and that all men are mortal does not confirm that Socrates is a man. It confirms that Socrates is mortal if assumptions are sound.

Spencer's "survival of the fittest' doctrine would be a truism if we could prove the theory of natural causality. We can't by any means known to me. Science takes it as a working assumption. So did Hume, and so do I. If God intervenes only a little, so that laws of nature comes close to reality most of the time, we're still in business.

My critique of Hamilton's rule proposed that nepotism meets resistance when it conflicts with nepotistic goals of others. I proposed a modus vivendi through agonistic rules. Hamilton's parasite theory with Zuk, written 18 years later, gives the game plan.

Nepotism, meaning kin selection through Hamilton's rule, is in the common interest to a point. It speeds up proof of best genes to beat the current parasites by testing female genes as well as male ones. Healthier mothers and sisters and aunts carry more fitness to invest in more young. And females in most K-selected species, including humans, perform most care of the offspring and siblings and nepotes (nephews and nieces) that receive it[10]. Male competition alone does not determine best current genes to nature's satisfaction. Female breeding competition and nepotistic investment help prove them farther.

All agonistic rules are about keeping the contest fair and deciding when proof is enough. Long-term success against future as well as current parasites needs most losers, not all, to go to the bench (low frequencies; source demes in my version) rather than to extinction. Most losers survived to enter the contest because they were winners once before. Their cost on the bench, or on the taxi squad, is good insurance.

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[10] The burden is about 50-50 in pair-bonding birds. Fathers look to be the only caregivers in territorial fish such as sticklebacks.

My version of Hamilton's parasite theory patched in some of Trivers' ideas. One was that mothers intuiting self-health and good prospects should tend to breed higher primary sex ratios and conversely. Their male offspring can then find willing mates if health carries reliable signs as Hamilton proposed. Also the investment of insurance cost by winners in maintaining losers on the bench can be interpreted as Trivers' reciprocal altruism to be recovered when winners now become losers later.

My discussion of grandparental investment let still more worms out of the can. It is clear that humans in advanced economies today normally live to nearly three generation lengths. I proposed that we are replenishing a total capital reserve, meaning mainly a human capital one, when recovering from hard times in the world wars and world depression. No one really knows.

CHAPTER 8: BANKS, MONEY AND MACROECONOMICS

Splitting up Banks

I started to write a book on banks and money a year ago. I stopped when I realized that I don't know enough about the subject. I have some experience and have done some reading in those fields, but not enough to justify a whole book. A chapter, or part of a chapter, is more like it.

Sumerian temples doubled as banks, mostly for agricultural loans to finance the next crop. It is from their records, in clay tablets, that we know they understood compound interest and the capitalization formula.

Deposit-and-lend banks as we know them today emerged in Venice and other European cities in the twelfth and thirteenth centuries. Chapter 1 said that equity investors cannot be attracted at leverage (deposit/equity) of less than 10:1, that even one tenth so much leverage is unstable in high winds, and that we rebuild the banking system after every systemic failure because we blamed the high winds rather than the rickety structure.

I said that the solution is to split up banks as we know them into deposit banks which invest in ETFs on the one side, and lending banks which raise funds from investors rather than depositors on the other. These entities would have separate stockholders, and would not interact unless incidentally.

A different kind of bank split-up has been urged since the 2008 crash. Repeal of the Glass-Steagle act had allowed commercial (deposit-and-lend) banks to operate as investment banks (brokerage firms). Many blamed the crash on that repeal, and on investment bank innovations such as mortgage-backed securities. I think those critics are looking in the wrong direction. The problem, as with most bank crashes over the centuries, was overleverage encouraged by nearly costless deposits. The solution is not to peel off brokerage operations from the mix, but to peel off deposits.

I see no reason why lending banks should be separate from investment banks. Rather the depositors' money should not be risked in either.

It is also a mistake to blame Wall Street chicanery. Chicanery is a fact of life, and Wall Street has more than its share. But I can testify, from a ringside seat, that many sound financiers and first-rate economists genuinely believed in the sub-prime derivatives they were selling. They were proposed to the trusts I run. I turned them down as a business proposition because I saw too much complexity and no upside. But my read was that the presenters were sold themselves.

The problem is not in the people. It is in the inherent fragility of deposit-and-lend banks. Then what would the world be like without them? The answer first needs a closer look at the problem.

Credit Risk is More than Leverage

Some leverage is a good thing. Firms issue bonds as well as stocks in order to attract a wider range of investors. Risk-averse investors may choose the safety of bonds, whose interest claims are paid first, while risk tolerant ones may be happy with the iffier but more promising equity remainder. Leverage in general is a way to satisfy both these constituencies.

Credit risk rises with term (duration) as well as amount of debt. One of the most telling points in Siegel's *Stocks for the Long Run* is that corporate bonds of 15 years or more have proved more volatile in real total return than equities have. No wonder. A corporate bond will have ample debt coverage (gross profit/debt service) at date of issuance, and an appropriate credit rating. What will both be fifteen years from now?

Homeowners also typically borrow long-term. They expect to have children in local schools, husbands and/or wives in local jobs, and other roots in the community. But who knows that husbands and wives will still be married in fifteen years? Who knows that if they are, their careers will not have taken them to another city?

It seems to me that reducing the dangers of debt means reducing both term and amount, and that the solution had better find ways that still accommodate the short-term and long-term needs of firms and people.

Now let's look at how deposit banks might invest.

The Omnibus Fund Idea

If I were a couple of decades younger, I would try to create something I call an omnibus fund. It starts by seeming to contradict what I just said. I said that firms issue both stocks and bonds to reach different constituencies. The omnibus fund would first erase that separation. In principle it would reconstruct the firm as a whole, or put the pieces back together again, by assembling proportionate shares of the debt and equity claims on it in a single portfolio.

Suppose for example that the market cap (number of shares times current market quotation) for a firm's equity shares is one billion dollars, while the market cap of all debt claims together in half that. Then the omnibus fund, in principle, would buy each firm's equities and debt instruments in that proportion at current market valuation. In practice it could realize the same effect in a simpler way.

The omnibus fund would be a balanced index fund. Index funds are representative of all the funds in an index, such as the S&P 500, weighted again to market cap. The omnibus fund would pick a still more inclusive index, say the Russell 3000 or even the Wilshire 5000. It would add in a corporate bond index, since balanced means mixing stocks and bonds, and cap weight the two. The object would be to model the publicly-traded corporate sector as a whole. The simplest way to get there would be to buy index ETFs (exchange traded funds) directly, rather than duplicating their work of assembling portfolios of the underlying individual issues.

If it stopped at that point, the omnibus fund would probably attract few investors. It would offer the aggregate return and risk of the publicity-traded corporate sector as if it had never borrowed or issued debt. Aggregate means average. No one is exactly average. Some like me and my father happen to be more risk-tolerant, and opt for the higher returns that tend to come from higher risk. Some prefer the opposite. How can the omnibus fund attract both?

The answer is derivatives. Derivatives are obligations whose benefits depend on outcomes imperfectly foreseen. I said in the forward that I'm all in favor of them so long as we respect and manage the risks. Equities themselves are the classical example. Mortgage-backed securities give another. Common forms include futures and swaps. The idea is about the same. Each typically picks an index, often the S&P 500. One party, the "short leg", bets so much money, the "notional amount", that the S&P 500 index will go down tomorrow. Another party, the "long leg", bets it will go up. The short leg gets so much, say Libor plus 20 basis points (hundredths of a percent) of the notional amount, in any outcome. The long leg gets the index change, whether up or down, times the same notional amount.

No one actually invests the notional amount. It is called "notional" for good reason. Rather each side (leg) commits a cash reserve, held by the firm managing the swap or future, in this case the omnibus fund itself, of 20% of the notional amount. The reserve is drawn down to meet payments required when market swings are averse, and replenished when favorable. When it falls to 10% of the notional amount, it is considered unsafe and the swap or future ends prematurely. Parties are warned, and new reserves can be committed in time.

Monitoring of the reserve is continuous during market hours. Whenever the reserve falls to 10%, even in the middle of the day, the account is closed immediately. This discipline keeps the other party safe.

Risk-averse clients in the omnibus fund can take short legs, and risk-tolerant ones long legs. Management of the omnibus fund can handle the mechanics of the swaps or futures.

The effect would be not less leverage per se, since leverage at the individual account level is substituted for leverage at the corporate level. The difference is duration. Swaps and futures are short-term commitments. Three months is typical. Futures trade in active markets, for good measure, and can usually be liquidated in seconds at current market during trading hours. So can ETFs themselves.

What do these derivatives cost? Essentially nothing. Those who prefer safety and the short leg are matched with those who prefer return and the long leg, while the manager charges only for its time in working the mechanics.

What About Asset Allocation?

Where the omnibus fund seems to violate common sense is in merging out what had seemed to be valuable distinctions. So it would seem with the blending of equity and debt claims, but for an optional overlay of derivatives such as futures to restore whatever risk and expected return we want. Many distinctions blended out, including that one, have been important to principles of asset allocation and modern portfolio theory. They are important because some investment sectors are less correlated than others, meaning less likely to risk and fall in lockstep. Low-correlation portfolios are better because less volatile as a whole without sacrifice of return. That's why hedge funds typically assemble portfolios judged low or negative in correlation, and then try to reduce correlation still further with an overlay of derivatives. The omnibus fund seems to throw away all these options.

Not really. One of the lessons of the 2008 crash is that everything but Treasuries tends to go down in high winds. Anti-correlation strategies failed when we most needed them. The omnibus fund isn't really giving up so much. Its exceptional diversity makes it begin with less correlation than specializing portfolios. And nothing would prevent a sophisticated investor in the omnibus fund from manipulating correlation further down with derivatives as hedge funds do.

Liquidity, Risk and Return

Demand deposits in banks today can be withdrawn at any time. Time deposits cannot be attracted without either competitive interest or quick liquidity. This liquidity requirement has been awkward in that bank deposits are usually reloaned for years. A run on the bank soon finds no cash left to meet withdrawals. The runs come when the high winds blow, and provide a *coup de grace* on top of high default rates.

The omnibus fund meets withdrawals easily because it is invested only in the most liquid securities. ETFs trade in seconds at current market quotations. Any mutual fund shares that might belong to the portfolio trade at current close.

Like most funds, the omnibus fund would also maintain cash. Like some others, it would "equitize" its cash by exposing it to swaps or futures. Equitized cash leaves a fund fully invested in effect, while adding instant liquidity around the clock. ETFs give instant liquidity, but only during trading hours. Mutual funds typically trade at market close only.

A risk-averse investor in the omnibus fund who opts for Libor plus so many basis points is more or less in the same position as a bank depositor today. She knows that her account will grow only by deposits and by interest (Libor plus basis points) left in to compound. She knows that it will decline only by withdrawals. The investor who prefers the long leg in swaps or futures, or stays unhedged, will also see her account rise and fall with the market. There are infinite graduations around these three simple choices. An account might be partly hedged and partly exposed, or even over-exposed to a notional amount larger than the account size where law and markets permit. (They usually do.)

Payment Mediation

Banks effect payments from depositors' accounts. An omnibus fund can do the same. Payments out are directed "redemptions" in the language of brokerage accounts, or withdrawals in the language of bank accounts. Payments in are "subscriptions" to brokers and their clients, or deposits to bankers.

All these payments can be electronic. A payer, typically a customer, might swipe a card or click a screen. A payee, typically a vendor, typically must verify first that the account is authentic and covers the payment offered. An omnibus fund could be well suited to give this quick transparency.

First, it is essentially an index fund. It is composed of a published ratio of index ETFs and index mutual funds and index-equitized cash. Individual accounts are then hedged or exposed to index swaps or future overlays administered by the omnibus fund itself. The fund can track all these indexes online, and knows from tick to tick what each account is worth. This holds true even for volatile accounts where risk-tolerant clients have opted for long legs in swaps and futures. So long as management effects all payments in an out, and constructs each account of index exposures itself, and tracks those exposures and payments in real time, it knows account values exactly.

Risk-tolerant clients will expect daily ups and downs in account size. That means that they will have to carry larger accounts in order to be sure of covering payments in the downswings. That would be a problem if accounts yielded zero return, as checkable bank deposits do. The gist of my answer to Milton Friedman was that no amount of money is too much if it yields as much return as other assets of equal risk. Accounts are hedged or leveraged to do so. Omnibus fund accounts burn no holes in pockets. We do not own one to spend, like a checking account, and treat it as a drag on earnings until spent. We own it as a fully competitive investment, and spend it reluctantly when bills are presented.

Why Invest in Indexes?

The last section showed that index funds offer easy trackability over market hours. What are the other pros and cons?

On sound microeconomic principle, professional asset management will add value over index results before deduction of fees. Otherwise they couldn't stay in business. The same principle says that the fees will converge to that pre-fee value added. Price converges to marginal utility (value). Investors bid fees up when fees are less, and down when they are more. As a rule of thumb, investors should expect to do equally well in managed or index accounts when fee costs are considered too.

The mechanics of convergence is worth a look. Managed and index funds compete in a kind of density-dependent flux like hawks and doves in game theory. It pays to be a hawk when the hawk/dove ratio is too low, and a dove when too high. When hawks have only hawks to fight, they will win only half the time. Fighting becomes a losing strategy when it risks more than winning stands to gain. More doves will mean easier contests.

So it is with asset managers. Index funds (doves) avoid commitment (fights) as to which firms and sectors will outperform. This neutrality saves the costs of research needed for commitment (fights). Asset managers (hawks) pay those costs, and recover them when outperformance results. That means outperforming the index. But if asset managers collectively managed the whole market, they would become the index. Some would outperform others, but the whole group cannot outperform itself. Then it could not recover its research costs. Many would have to close their doors, leaving the field to index funds which don't pay those costs, until market equilibrium was restored.

Then what determines equilibrium? Is the critical variable percent of trades by managed funds? I thought so for a while. Now I think it's percent of AUM (market value of assets under management). My reasoning now is that holds by portfolio managers reveal informed opinion on security values as clearly as trades do. Research cost is the same for both. If a manger neither buys nor sells, she tells us that she thinks the price is right. The critical variable is not trade volume, but percent of aggregate market cap controlled by asset managers collectively.

The number of asset managers is much less critical. There must be enough for competition within each specialty or sector of investment. Too many is not a concern. Abler ones, on microeconomic principle, will displace the less able. That's why Herbert Spencer taught that natural selection works the same in economics as in biology.

A particular reason for preferring index ETFs as omnibus fund investments is for cheaper liquidity. The omnibus fund must compete with banks in accommodating payments and other withdrawals (redemptions). Popular index ETFs such as spiders (SPDRs, for Standard and Poor's Depository Receipts) are bought and sold in seconds for a fee of a couple of basis points. So are Treasury ETFs. Thus the omnibus fund might do best not to include actual corporate bond ETFs in reintegrating the corporate sector. Treasuries of equal value should do about as well at much lower trading cost. Easy liquidity is essential.

Why Omnibus?

Omnibus means for everyone as well as of everything. It is all-inclusive either way. Individuals differ in risk tolerance. An omnibus fund provides for all. The portfolio of index exposures to riskier equity claims and safer debt claims is meant to satisfy average risk tolerance as a whole. Individual accounts then choose short-leg hedges or long-leg exposure or anything between. An omnibus portfolio best matches aggregate risk and return to individual claims on it.

Other approaches would work too. A broad-based *equity* index fund, targeting say the S&P 500 or Russell 3000, could give the same tick-to-tick transparency in individual accounts. Hedging would still be available to cater to individual risk appetites within the risk-tolerant groups. A broad-based *bond* index fund would do the same for the risk-averse.

It seems to me that the omnibus fund would do both jobs at once, and would attract more clients collectively. Bigger is better for payment processing. The more clients, the more "two-sided" payments from one client to another. These payments are always cheapest.

If accounts cost little or nothing to open, vendors would logically need no urging to open them. That again favors the simplicity and economy and immediacy of two-sided payments by including both buyers and sellers within the fund.

The omnibus fund is also for everyone as a investor as well as a payer. Very few people have the time or training to beat the market. I myself have not. What we have is a sense of our degree of risk-aversion. The omnibus fund gives the broadest and most flexible coverage of risk appetites. It can poll and advise clients on risk preferences, and mediate hedges and exposures to suit.

How the Omnibus Fund Might Evolve

I said that if I were a couple of decades younger, I would start an omnibus fund. Not to worry. If the idea holds water, as I think, someone else will.

It seems to me that banks could not offer much competition. Demand deposits typically pay no interest, and process payments no better. Omnibus clients offer an infinite range of returns according to client tolerance for risk.

Banks offer the advantage of federal deposit insurance (FDIC). It will not be enough. The omnibus fund carries no leverage, and needs no insurance. As it grows, banks will take notice. They can keep up the uneven fight, or they can join the parade. My working assumption is that many will prefer the latter. Banks are well positioned to make the most of the idea. They have the needed expertise and systems and clientele in place. They can spin off their lending operations as separate ventures to find funds from investors rather than depositors.

If there were no FDIC, there would be no deposits and no commercial banks. People can read the newspapers. Anyone old enough has lived through periodic bailouts. I'm a free market fan who dislikes FDIC. But we would be rash to yank the rug from under banks by repealing it. We shouldn't even hint that we might. The world we know is build around banks, and banks are built on FDIC. Let it stand. How can anyone know for sure that omnibus funds and independent lending banks will do better? I think omnibus funds figure to win despite that advantage for banks.

Lending Banks

This is the area least clear to me. Banks as we know them begin with expertise, systems and clientele in the loans business as well as the deposit and payment processing business. That could position them to take the lead in both if spun off separately. Lending can stand alone. There are many lending firms other than banks. They raise funds from investors seeking returns, rather than depositors seeking liquidity, and somehow mange to compete with banks today. Lending banks divorced from depositors could do whatever they do.

If interest rates must rise because investors demand competitive returns, some traditional borrowers will be motivated to attract equity investment instead. Corporations and other firms could phase out structural (long-term) debt, and float new stock issues in its place. The effect would be to lower leverage, risk and return together. Investors could then tailor risk and return more flexibly by hedging or leveraging their individual holdings through professional services.

If the same rise in interest rates makes it impractical for newlyweds to buy homes, they can rent until their means improve. In ten or fifteen years their incomes will double. They will know if they are still married, how much house they need if so, and where their careers have taken them. Meanwhile they might rent the same house they would have bought. They will not have missed a sure-fire investment. The crash of 2008 showed that houses are risky too. The time to commit to huge and illiquid investments, as houses are, is after ten or fifteen years of business experience.

I see no reason why lending banks should not make equity investments too. Loans, convertible loans and equity investments need the same "due diligence", or research into prospects of success and return. All might serve the same clients. "Lending banks" might simply be investment banks. That's why splitting of investment banks and commercial (deposit-and-lend) banks may be a step in the wrong direction. The key is splitting off deposits.

Macroeconomics in General

Splitting up commercial banks into omnibus funds and depositless lending banks could change the nature of macroeconomics. Macro has meant the art of maintaining growth and money value stability at the same time. This has proved mostly a tightrope walk between inflation and recession. Easy money risks the first, and tight money the second. My idea is to disconnect the problems of underemployment and money value instability. If medicine for one has no side effect on the other, each can be treated more freely.

I would first dissociate money value from money supply. No supply is too large if money earns competitive returns while we hold it. That was one of the main ideas of the omnibus fund. Milton Friedman thought my early version of this idea was anathema. Franco Modigliani liked it fine, but asked tough questions. I'll try to answer some of them below.

My approach to the problems of underemployment and the business cycle begins with phasing out deposit-and-lend banks as I described. I more or less agree with

Ludwig von Mises and the Austrian school that slumps come from overinvestment enabled by overlending. In 1928[1], a year before the crash, Mises wrote:

> Sooner or later, the crisis must inevitably break out as the result of change in the conduct of the banks. The later the crack-up comes, the longer the period in which the calculation of the entrepreneurs is misguided by the issue of additional fiduciary media[2]. The greater this additional quantity of fiduciary money, the more factors of production have been firmly committed in the form of investments which appeared profitable only because of the artificially reduced interest rate and which prove to be unprofitable… Great losses are sustained as a result of misdirected capital investments. Many new structures remain unfinished. Others, already completed, close down operations. Still others are carried on because, after writing off losses which represent a waste of capital, operation of the existing structure pays at least something.

Here Mises, writing in 1928, describes the crash of 2008 even more vividly than the one in 1929. "Many new structures remain unfinished. Others, already completed, close down operations." These were mostly plant and office buildings in 1929, and mostly houses in 2008.

Mises argued that money should be backed by precious metals. He was right in thinking that it should be backed. But precious metals pay no return. The omnibus fund earns competitive return at the risk level chosen in each account. Accounts are owned for performance, and only incidentally for liquidity. No amount is so large as to tempt overspending.

It did not occur to Mises that divorcement of deposits from lending might prevent the cycle in the first place. Nor did he mention the danger of 10:1 bank leverage, and often more, in amplifying consequences of bad guesses. His idea was better governance of commercial banks. Mine is ending them.

Free growth theory also belongs to macroeconomics in that it predicts only at the collective scale. It predicts that *ex ante* net investment, or attempted investment beyond depreciation recovery, is simply less consumption with no growth to show for it. My charts and tables show that this has been true wherever and whenever tested, in eight economies over 40 to 140 years. We crowd our niches like other creatures, I think, and have no room for growth except as innovation widens the niche. The charts and tables seem to tell us that innovation costs no more in failure rates and learning curves that daily coping does.

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[1] *Monetary Stabilization and Cyclical Policy*.

[2] Unbacked paper money. Also called government fiat money.

Macroeconomics and Keynes

Macro emerged in the 1930s under the influence of Keynes. Simon Kuznets, the chief architect of the U.S. national accounts, was one of the five economists Keynes invited to proof the chapters of his *General Theory* as he wrote them[3]. National accounts were soon reorganized along Keynesian lines.

To read the *General Theory*, a beautiful work, one would think that counter opinions were led by his close friend Arthur Pigou. But Pigou was already in print with recommendations much like Keynes' when it was published in 1936. Opposition came rather from Mises, the other Austrians, Lionel Robbins and the Chicago school. They argued that intervention tends to make things worse. So do many economists today. Keynes believed in fiscal and monetary policy as I describe in Chapter 1. He favored fiscal policy.

Chapter 2 said that he made a basic distinction between investment producing new things and repurchase of things already produced. Only the first counted as real investment. The difference matters because only the first puts plant and people to work. Transfers neither add nor subtract value. Even so, my own language counts all as investment, and ranks investment only by return. I make no distinction among investment adding new plant and equipment, or investment in stocks and bonds already issued, or in existing structures, or even under the mattress.

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[3] The others were Harrod, Sraffa, Joan Robinson and Ralph Hawtree.

What matters is return. I don't have to specify "risk-adjusted" return so long as I describe the collective scale alone. Collective return is implicitly average-risk return. I prioritize it on the reasoning that optimizing employment of people and plant is implicit, and that optimizing means putting them to work most productively rather than over the most hours.

If policy maximizes rate of return, at the collective scale, it will maximize true output perforce. Return is output divided by total capital producing it. More return is more output per unit capital. Putting idle plant and people to work, in a slump, is a step in the right direction. But it doesn't get the job done unless they work productively. Even putting money under the mattress is better than investing at a loss. Zero return is better than negative return. I accept Keynes' distinction between new investment and transfer payments. But I see the latter as part of the mechanics that ends up in the former. Maximize return, and full employment will happen.

Keynes' opposition is now mostly the Chicago school and other "freshwater" schools bordering the Great Lakes and along inland rivers. Somehow the taste for Keynesian intervention resonated best in "saltwater" seaboard school such as Harvard, MIT, Stanford, and University of California. It is probably no coincidence that the saltwater states are the "blue" ones tending to vote Democrat, while the freshwater ones are the "red" ones favoring Republicans. (I call myself a free market Democrat, whether or not that's a contradiction in terms.) Freshwater views tend to oppose intervention, but accept Keynesian basic definitions and equations such as the $Y = I + C$ doctrine and the distinction between "attempted saving" and investment. It is these I question.

I don't think much of his view that intended saving (consumption foregone) becomes actual saving only if invested, and becomes an equal amount of physical capital growth if it is. Then (actual) net saving, net investment and physical capital growth would become synonymous. I said why I prefer a language where saving and investment are synonymous in the first place. What matters is rate of return.

Investment (saving) under the mattress yields only the psychic value of liquidity. Actual capital growth depends on rate of return as much as amount invested. If return holds the same as it was before, growth and net *ex ante* investment will be equal. Growth will be less than consumption foregone (remembering the asterisks) if return drops, and more if return rises.

Keynes saw slumps as investment deficits. I see them as return deficits. Keynes assumed uncritically, I think, that new investment is the path out of slumps. Investment will come when prospects of return do.

Although the *General Theory* was published three years before Myrdal's *ex ante* – *ex post* distinction, Keynes would have realized the same thing. I think he made the understandable mistake of supposing that the difference would balance out as random noise. The charts and tables show otherwise. The optimum *ex ante* investment target is enough to offset realistic depreciation exactly.

Keynes was a great thinker, a lively writer and a decent man. I happen to endorse some of his policy ideas. So did my father. When I asked him what he thought of fiscal policy, I expected something like Hawtree's "crowding out" argument: government investment preempts and prevents private investment. I got a surprise. My father said "When people are out of work, that's the time to build a new post office." It is, if you need a new post office, because returns can be higher when contractors strapped for options bid construction cost down.

But it is no disrespect to point that the *General Theory* was published 80 years ago. I tend to support Keynes on some points, for example the usefulness of fiscal policy in relieving slumps, but to agree mostly with Mises on their causes in the first place. Where I differ from both is in the fundamental anatomy.

Stabilizing Money Value

Modigliani's main critique was that money earning full competitive return, so that no amount was too much, would make monetary policy impossible in its usual forms. My best answer at the time was that full-return money ought to remove inflationary or deflationary pressures. But I agreed with him that money value might drift, even so, and that some control would be a safeguard if someone could think of a way.

The best that occurs to me is continuous revaluation of the dollar. Legal tender laws specify dollars, or other currency in other countries, as the default means of payment recognized in satisfying money obligations. Laws could be changed to specify real dollars instead. Real means corrected for inflation or deflation.

This would have been impractical before the information age. The problem now seems less. Spendable money, called M1, now means currency plus checking accounts. Government publishes current inflation figures online. Omnibus accounts could adjust automatically. They might show values in nominal and real dollars both. Account value would not change. Correction for inflation would show fewer dollars worth more each. Correction for deflation would show the opposite.

Currency itself cannot adjust so elegantly. It would remain legal tender, but not necessarily at face value. Currency would impose a translation cost on its spenders and receivers. Say for example that the change in legal tender laws was effective as of January 1, 2020. The real value of the dollar, whether accounts or currency, would mean its value of that baseline. Nominal value would be that plus inflation since. Calculators or iPads could keep track of the conversion rate. The cost and nuisance of this conversion should be manageable. But it would probably reduce demand for currency where cards or the equivalent do as well. The benefit is in encouraging long-term contracts and saving "menu change costs." That means costs of changing prices. There is no need to change them on account of inflation if prices are specified in real rather than nominal dollars.

Price stability can matter. The United States has managed to avoid double-digit inflation since the Volker reforms of the 1980s. But the danger remains. Modigliani was right to worry.

A law making real dollars legal tender might prompt better measurements of inflation. Many economists agree that our official ones overstate inflation by allowing two little for quality improvements. A Lexus or Tesla is not a Model A. That was the theme of the Boskin Commission report to President Clinton in 1995. The Boskin panel argued that quality-corrected inflation has run about 1.1% less than the numbers posted in the consumer price index (CPI). I think so too. But making real dollars legal tender, even by these imperfect measures, could still give more confidence in long-term commitments than the status quo.

Speeding Up Fiscal Policy

Designating real rather than nominal dollars as legal tender would amount to an unfamiliar and more direct form of monetary policy. Meanwhile devolution of banks into their separate deposit and lending functions, along with emergence of omnibus funds, need put no constraints on fiscal policy.

Fiscal policy has prescribed tax cuts and government spending in slumps. It prescribes the opposite, at least in principle, in booms. A problem is that it has proved slow to implement. There is an "inside lag" while government diagnoses the problem and calls for a vote in the legislature. An "outside lag" follows until taxes come due and spending programs are put together and gradually put plant and people to work.

The inside lag is unavoidable in a democracy unless the executive branch, or an independent agency like the Fed, is given standing limited authority to diagnose early signs of unemployment, and to address them with tax cuts or spending. And there must be enough outside lag to make sure that the medicine has good prospects in rate of return. Return comes first.

Tax cuts can be faster-acting than spending programs because they obviate the construction period. Freshwater economists argue plausibly that they are likely to prove ineffective. They foresee "rational expectations" of taxpayers as predicting eventual restoration of the taxes when full employment resumes. This gives a motive to save the tax cut rather than spend it as intended. I see it a little differently. Most consumption is maintenance or investment to keep up human capital. We will need that earning power when taxes are restored.

Say's Law

Jean Baptiste Say, in writings I haven't read, argued two centuries ago that supply creates its own demand. The logic is sound to a point. The claims on output simplify to pay plus profit. The asterisks don't matter here. Thus pay plus profit is always enough to clear that market. There could be "partial gluts" when we produced too much of one thing and not enough of another, but never a "general glut" where production got ahead of our means to pay for it.

All too true. Consumption plus investment equals pay plus profit. But the sad fact is that profit can be negative. Deadweight loss happens. When it happens, at the collective scale, even pay claims may be left unsatisfied. Say's law gives no comfort except where outcomes are as expected.

Tax Considerations

Schultz in 1962 argued that educational (human) capital is overtaxed. What he wrote was: "The established tax treatment takes account of both depreciation and obsolescence in the case of physical capital, but this accounting is not extended to human capital". He was right. Income tax is charged on net profit of firms and pay of workers. Pay measures gross realized work including human depreciation.

Tax laws now counter that imbalance by applying lower rates to pay as "earned income". If we could measure human depreciation, or model it with enough confidence, we would know how much correction was enough. That's a reason to take depreciation theory seriously.

Market-Valued Capital in Macroeconomics

Another reason why macro should be reconceived from scratch is that its defining equations, written mostly over half a century ago, leave out capital. Change in capital shows as net investment, but capital itself stays outside. Flows are considered sufficient for description.

Piketty, a good economic historian, tells us that this did not have to be. It seems that the largest economies had good records of market-valued capital since the late-middle nineteenth century. Piketty does not speculate why macro and national accounts ignored them when both took form in the 1920s and 1930s.

Physical capital and its changes can be measured at market or calculated by the perpetual inventory method used in balance sheets. I showed in Chapter 2 why that method is not the best. Depreciation accounting assumes norms in the loss of capital value with time, and gets the news of actual outcomes long after. National accounts reported positive real net investment, meaning growth in capital value, in 1929, 1930, 1937 and 2008. They give little clue to reality in years of surprise.

The neglect of market-valued capital in macro and the national accounts until 1990 or so may have to do with the influence of Keynes. The *General Theory* includes some hilarious broadsides on the fickleness of market speculators. He put more trust in the sober disciplines of accounting. Piketty trusts the market more, and so do I.

Then why does Piketty track new investment, or change in capital, by the accounting methods used in national accounts? That seems inconsistent. My charts and tables track it at market. It seems to me that national accounts should track it both ways, and let each economist decide which version is more useful. Mine, at least, correctly describes those same four years as losing ones.

National Accounts Overall

It seems to me that national accounts are doing nothing wrong except in modeling the depreciation curve from misleading sales evidence. Evidence seems to show depreciation as fast at first, and slower later. That tends to be true when depreciable assets are actually sold. Structures tend to be customized for their original owners and occupants. They tend to be resold when results are disappointing. This disappointment often comes when expectations are first tested. When distressed sellers market illiquid structures customized for themselves, prices too will be disappointing.

Better to trust evidence of structures intended in the first place to pass from owner to owner, as with many standardized rather than customized apartment and office and warehouse buildings. Better still, from an economist's viewpoint if not an accountant's, is to trust logic. Capital is present value of expected cash flow. Its loss of value with time, under simplifying assumptions, is the present value of the most distant and most discounted cash flow. Depreciation of structures we keep, rather than sell, is least at first and greatest at the end. It is the same as with a level-payment mortgage.

National accounts are nonetheless a magnificent achievement. They need interpretation just as corporate accounts do. That's where economics comes in. And national accounts are not resting on past practices. They can be congratulated on including market valued capital, even if sixty years too late, and on extrapolating it backward where practical. This book could scarcely have been written if they hadn't. I would recommend the obvious next step. Net investment should be shown alternatively as change in market-valued, and output as that plus consumption. Let economists decide which version is good for what.

National Wealth Including Human Capital

By definition, pure consumption rate is pure consumption divided by total capital. This can be arranged as

$$\text{total capital} = \frac{\text{pure consumption}}{\text{pure consumption rate}} \ . \qquad (8.1)$$

Next generation theory modeled the pure consumption rate as 3.5% per year. Historical data showed dividend and interest rates as more or less in this region since Sumerian times. I model pure consumption as about three fourths of all consumption. I take consumption as personal consumption expenditure (PCE) plus government consumption expenditure (GCE) per the national accounts.

GCE includes government outlays, at all levels of government, on education and welfare. These are easily recognized as consumption. It also includes costs of law enforcement, national defense, fire control, and maintenance of infrastructure such as highways and water systems and government buildings. These too count as consumption, even if we mightn't have thought so. They are part of the cost of our survival. That's why I agree with Kuznets and tradition, although I didn't always, that consumption includes all of GCE.

PCE in 2015 shows as \$12.429 trillion. GCE is reported at \$2.5855 trillion. Both are in 2015 dollars. their sum is \$15.0145 trillion. Three fourths of that is \$11.2609 trillion. Then (8.1) gives

$$\text{total capital} = \frac{\text{pure consumption}}{\text{pure consumption rate}} = \frac{\$11.2609}{.035\,/\,\text{year}} = \$321.74 \text{ trillion},$$

in 2015 dollars. This rough estimate can be borne in mind when we evaluate the tax base and the risk of national debt. U.S. public and private debt together has been estimated at a little less than a fourth of this sum. My impression is that this exposure is not yet dangerous. But it needs watching.

The best method to estimate aggregate adult human capital separately is Petty's. It is present value of future human cash flow. That means pay less invested consumption. If I am right, meaning that Farr, Marshall and Kiker are wrong, invested consumption is negligible among adults. Then Petty was right to capitalize pay with no deduction. And he was right to capitalize aggregate current pay, with no need to model the future. Growth of pay will tend to match growth of human capital. The discount rate to find its present value is expected rated of return. Rate of return is growth rate plus cash flow rate. Evaluating human capital as constant current pay discounted by cash flow rate alone will give the same answer as if we modeled in expected pay growth, but then discounted at cash flow rate plus the same projected growth rate.

Total human capital is adult capital plus that of the young. That part might be measured at current cost. I won't attempt either of those calculations here, since they seem to call for economists expert in interpreting national accounts.

To Do List

Books and papers on economics tend to lead to "policy prescriptions". That means recommendations on what governments and markets and educators should do. My list begins with getting rid of the double tax on dividends. To get democrats on board, make the effect revenue neutral by raising the corporate tax rate. Dividend rates have been far too low for about 50 years now. They should average 5% to 6% real, as they did in the nineteenth century. The result of low dividends has been dangerous overinvestment in the private sector, with growth hampered rather than enhanced. Charts and tables make it clear that *ex ante* investment beyond depreciation recovery is deadweight loss.

I would tax capital gains as much as ordinary income for the same reason. Level the playing field. Solow saw most of the truth, but didn't go far enough. Mill saw more. And even Mill stopped short. All we have to do is look at the charts and tables. Capital accumulation does not exist. Any attempt lowers consumption with no growth to show for it.

Keep track of national wealth including human capital by my method here, and also by Petty's of 1664, 1676 and 1685. What would we think of corporate management that added up only the smaller part of corporate assets? We now consider physical capital only. Political parties debate what taxes and the national debt should be without the key facts.

Policy prescriptions can also aim at schools and what they teach. Macroeconomics should start over. It reached most of its present form in the "years of high theory", in the 1920s through 1950s, without the concepts of human capital or market-valued capital. It is founded on the inaccurate Y = C + I equation and the concomitant belief that output equals pay plus profit. It recognizes *ex ante – ex post* distinctions only crudely as to saving, by taking it as either invested or uninvested, and not at all as to investment itself. By missing the lag between market effects and book reaction, it misreads some of our worst years as our best and conversely.

The path forward is omnibus funds and devolution of commercial banks. Bank reform along the lines I suggested should need no help from lawmakers. But for gosh sakes, let's not set up barriers against it. Commercial banks and 10:1 leverage make slumps inevitable. Crashes are as sure as death and taxes until we phase them out.

Summary

Macro has meant a tightrope walk between the risks of inflation and recession. That doesn't have to be. The problems are detachable. Even today, It should be practical to redefine legal tender as real or inflation-corrected dollars. But the deeper solution is to devolve commercial banks into their separate deposit and lending functions, with separate stockholders and only incidental interaction.

It is best for the free market to do this alone. The omnibus fund could be the decisive innovation. It too is possible today. It would offer clients full competitive return, so that no supply would be too large. It would match bank deposits in liquidity and payment services with the low service charges typical of other index funds, while tailoring risk and return to client needs with essentially costless derivatives. The intention would be obsolescence of bank accounts, and devolution of banks in result.

Deposit-and-lend banks, inevitably leveraged at 10:1 or more, are the weak link explaining economic collapses about once a generation since the system was founded in the Renaissance. Misdeeds and misguesses and world events were only the proximate cause. Chicanery will be with us forever. Honest bad judgment will be with us forever. Supply shocks, as when OPEC raised oil prices in 1973, will be with us forever. Wars will be with us forever. Setbacks for our trading partners will be with us forever. These bring the high winds. I don't foresee much payout in trying to dial down the winds by upgrading human nature. The payout is in stabler structures.

The big bad wolf huffed and puffed, and the brick house stood. Omnibus funds will carry no leverage. Accounts themselves will be levered to taste, but for short periods only. Futures trade in seconds. The fund as a whole cannot become worthless until each and every security in its portfolio does. High winds and leverage can wipe out the accounts of risk-takers who chose the long leg, but not of those who opted for contractual interest and safety. That's as it should be. Risk-takers may name their poison. Omnibus means for all, and all-inclusive.

Derivatives are central to the omnibus fund idea. Some see them as dangerous. They can be. They are powerful. But they have a good track record of performing as contracted. Cash reserves, called margins, have proved enough to escape default even in 2008 and the flash crash of 2013. Short legs have been protected without fail, and long legs have got what they bargained for. The reason is that margin sufficiency is monitored from tick to tick. Checking every few seconds doesn't rule out every doomsday scenario, but gives about as much confidence as we're going to find in this uncertain world.

Saltwater and freshwater schools debate the wisdom of fiscal and monetary policy. But both sides frame their arguments in Keynesian language. I find it wanting. The idea that intended consumption is either invested or not, and realized in equal capital growth if it is, misses the essential mechanics. It measures employment of plant and people in hours rather than in production. This is a good reason why macro should start again from scratch. Another is to recast its basis equations in terms of market-valued capital as well as flows. Another is to accommodate human capital, for example by substituting the pay and Y rules for the doctrines that pay measures work and that output is investment plus consumption.

None of those good reasons refers to the possibility of omnibus funds. They are only a gleam in my eye. If they come to pass, and succeed as I imagine, macro will have still more novelty to digest. If they lead to devolution into separate deposit and lending banks, with the deposit banks operating as omnibus funds, good riddance to the 10:1 leverage that has brought down economies every generation or so since Marco Polo's time.

The lagged flow method of assessing efficacy of *ex ante* investment is outdated by the simultaneous rates one outlined in Chapter 4. It should go to honorable retirement whenever market-valued capital is available. It superimposes the inevitable unintended lag of accounts themselves, even under best practices, onto the intended one needed for the new tree planted to bear fruit. Both lags blur causality.

Some famous economists are tougher on the current state of macro than I am. Recent books argue that it should no longer be taught, and should receive no Nobel prizes. My diagnosis is about the same. But my prescription is opposite. Reconceive it from scratch, and teach it right. Award Nobel prizes to those who help. My first nominees would be Piketty and Zucman. Not that I think much of Piketty's arguments. But his website with Zucman is as powerful a new resource for scholarship and the database as national accounts were eight decades ago.

CHAPTER 9: SO WHAT'S NEW?

To claim originality in any field is rash. It is safer to say that some things in this book are new as far as I know. I know at least what I can't remember reading elsewhere. I am more confident in judging what will surprise in the sense of conflict with what is taught today. There we need only keep up with the current conversation. Judging originality with confidence means having read everything before.

My surprises were not all new, and my novelties (if such) where not all surprises. A few ideas met both descriptions. They pay rule, and the equally heretical Y rule, probably count as both although Becker came within a step of getting there first. Depreciation theory is likely to be both. Other possible candidates might include my observation that holds by money managers reveal prices as clearly as trades do, and my hawks-and-doves analogy inferring from this that index funds should outperform managed ones when aggregate AUM held by money managers, not trades by them, exceeds a critical percentage of the market to be determined. There may also be both surprise and novelty in my suggestion of monetary policy by establishment of real dollars as legal tender. In my wannabe biologist role, I just may have been first to the point out the gaffe in the math of Hamilton's rule.

Free growth theory takes Mill a little farther by ruling out growth by thrift at the collective scale. It should prove a major surprise to lawmakers, who incentivize thrift in the name of growth, and a milder one to economists already prepared by the insights of Solow. My possible originality here was in the simultaneous rates equations I derived to test them, and the test itself accessing data for market-valued capital as well as consumption from the Piketty-Zucman website. My definitions of market-valued net investment and net output, substituting for the book-valued versions used in national accounts, were essential for testing. I suppose these rank as novelties but not surprises.

The advantage of the simultaneous rates test over the standard lagged flows one is great. It avoids both lags, meaning the intended one to allow more capital to show its effect in more output, and the unintended one in the inherent unresponsiveness of accounts to market effects on capital already booked, while also gaining from the superiority of market measures of capital growth over book ones even when lags end. The method itself is no surprise because the math is high school algebra. The shock is in what it reveals. Solow and Denison were righter than they knew. There is no such thing as capital accumulation at the collective scale.

Risk theory is probably both marginal novelty and marginal surprise. The part that might be new, although obvious in retrospect, is that assets take on the risk characteristics of their owners. We knew all along that people buy assets to fit their own risk profiles. There may be novelty in my idea that it works the same in the opposite direction. Assets once acquired are modified to fit those profiles better. A family home bought by a drug dealer might become a crack house bringing higher expected return at higher risk of confiscation by authorities.

The next step was to connect risk profiles with age and gender. It seems well established that risk tolerance peaks in the teens and twenties, particularly in males. It drops steadily afterward for both sexes. R. A. Fisher in 1930, and Bob Trivers in 1972, suggested why. Males, in humans, produce thousands of cheap sperm. Females produce eggs, which are few and expensive because they are packed with nutrients. Young males might end up leaving dozens of offspring or none. Nature arranges competition to determine which. Females are reasonably sure to leave a few. They have less to compete about. As both sexes get past their 20s, their remaining reproductive chances grow fewer and competitive ranking clearer. There is less to compete about. Risk tolerance grades steadily down with age, and capital owned reflects the change with lower risk and return. This gives the basic theme.

The next key information was that human capital is owned disproportionately by the young. We own little else until independence at age 20 or so. Physical capital builds from then on, and peaks near retirement. But human capital grows quickly in the 20s and thirties too, as most human and other depreciation is concentrated toward the end. These are persuasive reasons to think that human capital is the riskier and higher-return factor overall.

The argument becomes complicated in that most investment in us before independence comes from parents rather than from self-invested work. Parents have a a strong say in what risks children run, so that parental risk tolerance governs too. But it governs most in pre-teen years, when parents themselves are passing through their own risk tolerance peaks. And human capital is probably the most versatile of assets in adjustment to our tastes for risk at the time. Cops can become robbers at will, and robbers can get religion.

We should not slip into the error of concluding that an individual's human capital is riskier than her physical capital at the same time. Both adjust to her current risk profile alike. That's why the parable of the boss and her secretary falsifies the notion that pay compensates realized work and nothing else. That would make return of each in her human capital a little over 100% per day at the start of the last day, and 100% per second at the start of the last second, even while their security portfolios reveal their time preference rates as a few percent per year. Human capital is not inherently risker, as hand grenades than nerf balls. Each cohort adapts all its wealth of both factors, counting balanced security portfolios as single assets, to its single characteristic risk profile. There may be novelty, but not much surprise, in this projection of the owner onto the asset rather than conversely.

That parable helped confirm the pay rule and explain age-wage profiles. It brought another surprise along the way. I grew up being told that houses are safe investments. But in fact they are owned by about the same age group and gender mix that owns the business sector. The publicly traded corporate sector is a part of the business sector that has given up return for safety by providing instant liquidity to shareholders. The notion that houses are safe took a punch in the gut in 2008. The notion that they ever were rests pretty much on evidence bolstered by government subsidies such as FHA and FNMA and FMAC which began before I was born. As it is, I don't see enough evidence either way to assert whether houses or the publicly traded corporate sector, cap-weighting its stock and bonds, should be risker. But even that uncertainly is a surprise in view of what we all were taught.

Depreciation theory is one of my favorites. It doesn't upset the applecart as much as the pay rule does, because little economic theory depends on it. I love it because it reverses tradition precisely. National accounts model depreciation as declining exponentially. I model it as rising exponentially. It's the same equation with a plus sign in place of a minus sign. I love its obviousness once we think about it. It follows when we remember the present value rule. Once we do, evidence for both factors makes more sense. Depreciation theory rounds out the pay rule in explaining how pay can rise or hold steady to the very end. And we see the same in businesses. Gross realized profit, analogous to pay, does not tend to decline as firms approach a date with the wrecking ball. My impression has been that rents go down when properties aren't kept up or locations become unfashionable, but not with age in itself. When it's time to demolish and rebuild, premises are more typically vacated with trade still running at norms. Gross realized profit is inevitably all depreciation on the last day, and would approach zero steadily if tradition were right.

There may have been minor novelty in my derivation of my three fundamental theorems as at least subjective certitudes following from definitions, and in my idea itself of subjective as distinct from empirical certitude. A subjective certitude is one such that contrary evidence would falsify the convergence axioms. I have found little or no empirical certitude past the *cogito*. I concede that the idea of subjective certitude is impertinent. How dare we infer what people *must* think?

We dare when we infer from definitions. I began with the somewhat unusual definition of capital (value) as perceived means of foreseen taste satisfactions. The usual "means of production" is equally valid, but less suited to my purpose here. I then pictured a future instant's worth of expected satisfaction. Its perceived value at that future moment would give its perceived value now save for differences explained by the time gap between. I adopted the old terms time preference or time discount rate to account for whatever they might be. There was no assumption as to whether the rate should prove positive or negative or zero, nor that the same rate should apply to other future instants. My goal was to leave not even the farthest-fetched of loopholes. If I have succeeded, the present value rule followed as subjective certitude giving exact expectations, though not outcomes, for each future instant and thus for all together. Note that my depreciation theory follows, but with the caveat that the version I have shown adds the usual assumption that time preference is positive. That part is not certitude, although neither are we likely to doubt it.

It was not hard to derive the maximand rule as the next step. Once we define tastes or more generally aims as whatever behavior reveals, the rest follows quickly. (Remember that I have no problem with mutually circular definitions.)

There were probably a few heuristic novelties. The parable of the boss and her secretary might itself be new. So might the slave paradox with its parable of Phil and Bill. Many including Adam Smith have pointed out economic inefficiencies in slavery, moral criticism aside. I can't recall mention of this most obvious one. Bill's maintenance consumption was taste-satisfying cash flow to Bill, and capitalized in his present value to himself. It is pure expense to Phil once Bill is enslaved. If all but one of us were enslaved by the one left, national output would drop by substantially all maintenance consumption on the books of the one slaveowner.

There may also be minor novelty in my analogy between accounting for the firm and accounting for human capital in Chapter 6. One possible example is my use of the term "decapitalization" to include depletion and liquidation in sale as well as depreciation. It simplifies to depreciation in the case of human capital because that factor cannot be alienated in reinvestment or gift or sale. One inference was that deadweight loss, negative output, negative realized output and unrecovered decapitalization all mean the same. This is obvious enough, but may have been left implicit before.

CHAPTER 10: THREE PANTHEONS

A few weeks ago I was being interviewed about my opera “Usher House”. How would I like to be remembered? With a straight face, I said I would like to be thought the best composer since Mahler, the best poet since Masefield, and the best economist since John Stuart Mill. The interviewer looked startled. Was she talking instead to the successor of Don Quixote, Emperor Norton and Walter Mitty?

Probably. But not to worry. Fantasies are good things. They don’t become delusions until we start believing them. What I believe is that at least dozens of composers have the knack. There must be hundreds, considering the terrific film scores attributed to names new to me when I hang on for the credits. Each of us, very much including film composers, gives the world what we think it needs. We like to be appreciated, but we don’t give a fig what it wants. We won’t always agree on what it needs. We’ll defend to the death the other guy’s right to his message. But we prefer our own. That’s what my answer meant. We’re each the best. But I do have the temerity to limit the list to those few dozens or hundreds.

Someone might also be surprised at my choice of benchmarks in verse and economics. Masefield and Mill? A consensus might have picked T. S. Elliot, say, and Lord Keynes. Masefield and Mill are likelier to be remembered as old-fashioned fuddy-duddies already outmoded when they wrote. But that’s me. I *am* Don Quixote. Not a single idol in my pantheons in those three fields was born after 1900, although that could change in economics.

My pantheon in music is Bach, Beethoven, Schubert, Wagner and Mahler. Mahler, the last-born, died in 1911 at 51. What about Mozart? Clearly colossal. Listen to the slow movements of almost any of his piano concertos. Childlike simplicity, then a slight surprise, then another, and all at once we are on a trip through the stars. But my top five show us more. Mozart is too darned enigmatic. He is too darned coy. He is too darned third-personal. And I *like* breaking a sweat. Mozart is uniquely the greatest at what he does within the bounds he chooses to set. But I like answers as well as questions. The five in my pantheon give me those.

Mozart is unrivalled at what he does because no one else plays the same game. What other composer has put such a premium on delicacy, on poise, on self-effacement? That doesn't deny that he was a red-blooded *mensch* who loved hijinks and good times as much as the rest of us. His *Rondo alla Turca* is one of many masterpieces showing that side. But it only rounds out the impression of a flawless dinner companion. A maxim of classicism in the Greek spirit is "nothing in excess". Mozart's exuberance and hijinks were just the right amount.

He was the master of moderation. His operas put passion mostly in the mouths of clowns and villains such as Papageno and Osmin and Queen of the Night. His sympathetic sorts have feelings too, but keep them circumspect. The perfect companion cares first about our feelings, not his. Mozart remains that even on our journeys together through the stars. We are kept safely away from the heat. We are allowed to feel anxiety because the world is so far below. That was half the point of the trip. The other half is the happy ending as he leads us safely home. Anxiety, but not in excess.

That shows him as the master of levitation. Richard Strauss gives the example of Susanna's aria "*Voi che sapete*" (you who know) from *Figaro*, an innocent ditty which somehow never lands on the tonic (home note) until the end. The beginning of *Eine Kleine Nachtmusik* (a little night music) does this again. But the slow movements of his piano concertos show it best.

Mozart is not my pantheon, even so. He is moderation in excess. I like the game the others all play. I like a sense of the first person singular. The five in my pantheon also take us through the stars. But they take us closer. We feel the heat because they do. Listen to Bach's *chaconne* for solo violin, or *passacaglia and fugue* for organ. Listen to the *heilige dankgesang* (holy song of thanksgiving) from Beethoven's quartet opus 132. Listen to the slow movement of Schubert's two-cello quintet opus 163. Listen to Wagner's *liebestod* (love death) from *Tristan*, or Mahler's adagietto from his fifth symphony. This music plays for keeps.

The polar opposite to Mozart would be Verdi. Like Mozart, he is not in my pantheon but close. For Verdi, no passion is too much. He is the master of contrast. He shakes our emotions back and forth as a dog shakes a rat. Lull and storm are each given enough time to pack the most punch in the other. He wants only opposites and extremes. What would the fastidious Franz Joseph have thought? He would have called the guard.

Somewhere between Apollo and Dionysus, between relativism and frenzy, lies the true path. The five in my pantheon have found it.

I seldom call myself a poet, since that's already a tad vainglorious. For better or verse, I'm a Jack of that trade too. The true poets in my pantheon begin with Keats and Masefield. I haven't found a clear choice for third. There are awesome things in Milton, Blake, Coleridge, Tennyson, Emily, Houseman, Robinson, Dowson, Yeats and others.

Shakespeare, like Mozart, doesn't figure in the center of the picture. I take him as the greatest mind and soul yet known, the greatest playwright, the greatest writer in general, and all of these because he taps to the bottom of what poetry can be. "Who is this whose grief/ Conjures the wandering stars, and makes them stand/ Like wonder-wounded hearers? It is I, /Hamlet the Dane". Holy mackerel! But these are touches in his plays. Poetry, in his time, meant something too coiffed and pretty and mannered for my taste. You can take Venus and Adonis, the Rape of Lucrece, and the sonnets. That includes the petulant dark lady sonnets, which break the model of preciousness but find nothing better. Shakespeare simply came along too early. I credit Milton, in "Lycidas", for discovering the true vein a few decades later.

That leaves economics. Here I really have a one-man pantheon in Sir William Petty. I suppose that I am the only person to have looked at his portrait alongside Isaac Newton's, in the Royal Society which they co-founded, and seen the two as intellectual equals. Mill seems a clear second, thanks to his superb paragraph on growth. The candidates for third seem well behind. Maybe Jevons or John Rae or Leon Walras. Time has not been kind to the teachings of Keynes. I would now rank his teacher Alfred Marshall higher. I like Myrdal's magnificent *ex ante – ex post* distinction. Boehm Bawerk and the Austrian school are underrated. The pantheon might have room for him.

Am I being too tough on later economists? We should not forget Schultz and Ben-Porath. Schultz' greatest achievement, unless Mincer beat him, was in spotlighting human depreciation. That left me to ask where this huge flow goes. The answer becomes inescapable once we focus on the question. It gives the obvious solution to the age-wage problem. Everything in this book is obvious. Some of it, like that solution, is the obvious but unnoticed.

Somebody, sooner or later, breaks the news about the emperor's new clothes. You'd think Don Quixote would be the last to pipe up. No one in the world was more devoted to tradition and beautiful creatures of the mind. But it takes a fool. He was that, and so am I. *Der reine tor*. There have to be a few of us always. We'll get a few windmills before they they get us.

APPENDIX A: The Argument in Notation

Output and Cash Flow

My focus will be on absolute rather than per capita values. The usual custom gives capital letters for the former and lower-case ones for the latter. I will prefer the upper case for stocks and flows, and the lower one for rates. That need not hold true for Greek letters.

The total return truism can be notated

$$Y = \dot{K}_T + F , \tag{A1.1}$$

where Y is output, K_T is total capital and F is cash flow. Also

$$F = \tau + C_P \quad \text{and} \quad \tau = \tau_+ - \tau_- , \tag{A1.2}$$

where τ (*tau*) is net transfer, τ_+ is transfer out, τ_- is transfer in and C_P is pure consumption (exhaust in taste satisfaction). Cash flow is the net of positive less negative components. I define them by

$$F_+ = \tau_+ + C_p , \quad F_- = \tau_- \quad \text{and} \quad F = F_+ - F_- . \tag{A1.2a}$$

At the collective scale, where transfers cancel internally, these equations combine for

$$Y = \dot{K}_T + C_p \quad \text{and} \quad F = F_+ = C_p \ . \tag{A1.3}$$

Math reminds us continually that “equals” does not necessarily mean “is”. (A1.1) and (A1.3), for example, do not mean that output *is* growth plus cash flow or growth plus pure consumption. Why? Output in itself means creation of economic value. Mathematically, that could include what I called "output exhaust", meaning value exhausted as soon as created. I ruled that out as "free goods", which happen every day but are neglected in economics as unable to influence behavior either before or after. That's why "equals" cannot mean "is" in (A1.3). And neither does it in (A1.5). Rather both state that output provides cash flow *offset* plus total capital growth.

This distinction helps everywhere in economics. We know for example that transfer out may be drawn either from capital in place or from concurrent output. The source of first kind is decaptialization D. But decaptialization also includes other components than transfer out. In Chapter 3, and again just now, I excluded output exhaust as free goods possible in math but neglected in economics. That makes decapitalization D the only source of pure consumption C_P. And not all decapitalization is transfer or exhaust. Some is deadweight loss, defined in (A1.1) as any negative sum of capital growth $\dot{K}_T$ and cash flow F. That can show in

$$D = D_\rho + D_\lambda \quad \text{and} \quad D_\rho = D_\tau + C_P. \tag{A1.4}$$

Here D_ρ is recovered or realized decapitalization, D_τ is "transfer depreciation" net of plowback into the same asset, and D_λ is deadweight loss. λ is *lambda*. At the collective scale, where transfers cancel internally, (A1.4) becomes

$$D_\rho = C_P. \tag{A1.4a}$$

The dispositions of transfer out may be reinvestment in other assets of the same owner, or may be gift to donees. Reinvestment can be interfactor as shown in Chapter 5. Transfer out from total capital of any individual, net of internal transfers, simplifies to gift. Transfer in gained by the owner's total capital, net of the same internal transfers, is gift received. The math becomes

$$\tau_+ = \gamma_+ , \quad \gamma = \gamma_+ - \gamma_- , \quad F_+ = \gamma_+ + C_p , \quad F_- = \gamma_- \quad \text{and} \quad F = \gamma + C_p \qquad \text{(A1.5)}$$

at the scale of each individual's total capital as a whole. Here γ (*gamma*) is net gift, γ_+ is gift and γ_- is gift received.

Divide (A1.1) by K_T to find

$$\frac{Y}{K_T} = \frac{\dot{K}_T}{K_T} + \frac{F}{K_T} \ . \qquad \text{(A1.6)}$$

Define these three terms as productivity or rate of return r, total capital growth rate g and cash flow rate f. Then (A1.6) can be reexpressed as

$$r = g + f \ . \qquad \text{(A1.6a)}$$

(A1.3) combines with (A1.6) to show

$$\frac{Y}{K_T} = \frac{\dot{K}_T}{K_T} + \frac{C_p}{K_T} \ , \quad \text{at the collective scale.} \qquad \text{(A1.7)}$$

Define "pure consumption rate" c_p as C_p / K_T, and substitute to show

$$r = g + c_p \ , \quad \text{at the collective scale.} \qquad \text{(A1.7a)}$$

(A1.1), (A1.6), (A1.7) and (A1.8) are alternative statements of the total return truism.

In general, define $g(Q) = \dot{Q}/Q$ for any variable Q. Note again that g in this book means growth rate of capital $g(K_T)$ rather than output. g in macro tradition usually means growth of output $g(Y)$. Total capital K_T is the sum of human capital H and physical capital K. Their outputs respectively are work W and (net) profit P. Their counterparts to (A1.1) and (A1.6a) are

$$W = \dot{H} + F(H)\ , \quad r(H) = g(H) + f(H)\ , \quad P = \dot{K} + F(K) \quad \text{and} \quad r(K) = g(K) + f(K)\ , \quad (A1.8)$$

where F(H), f(H), F(K) and f(K) are respectively "human cash flow", "human cash flow rate", "physical cash flow" and "physical cash flow rate".

Present Value and Present Cost

If there were no such thing as time preference, present and future value would be the same. All economists known to me concede that we prefer present goods to future ones, although some like Joseph Schumpter have seen no good reason why. I suggest a reason in next generation theory.

Present value theory, understood in essence by the Sumerians, considers what we now call future positive cash flows which are expected to be generated from external investments (transfer in, negative cash flow) made now or earlier. At the differential (infinitesimal) scale, we can write the associated future value as

$$dFV(z) = F_+(z)dz \qquad (2.1)$$

at future moment z. The basic idea of present value PV is

$$dPV(x) = F_{+}(z)e^{-q(z-x)}dz\,, \qquad (2.2)$$

where q is the appropriate time discount rate.

Note the implication

$$F_{+}(z)dz = dPV(x)e^{q(z-x)}\,, \qquad (2.3)$$

showing that q is the growth rate that raises the value of $dPV(x)$ to $F_{+}(z)dz$ over period $z-x$. Since this differential component of asset value defers all positive cash flow until moment z, and cannot in itself be affected by later transfers in, q simplifies by (A1.6a) to rate of return. This was Boehm Bawerk's insight, although he was not mathematical, in equating time preference rate to rate of return r. Thus (2.2) and (2.3) give

$$dPV(x)dx = F_{+}(z)e^{-r(z-x)}dz \quad \text{and} \quad F_{+}(z)dz = dPV(x)e^{r(z-x)}\,, \qquad (A2.4)$$

where r is the appropriate rate of return and time discount rate equivalently.

But what determines appropriate r in these equations? Rate of return varies with risk among different assets at the same time, and varies over time with economic circumstances. Most sources I have seen treat r in (A2.4) as a variable to be integrated over (x, z). I myself long believed the same.

My view now looks to the context. The asset as a whole will typically have received many differential investments before time x, and may receive many after. Each at inception will have been priced by the owner's time preference rate then. But my theme in risk theory is that assets can be traded or modified to the current owner's risk tolerance now. She discounts each expected future flow not by her foreseen time preference rate then, but by her time preference rate today. It seems to me that the appropriate discount rate r in (A2.4) is $r(x)$. She will provide for anticipated changes in her time preference rate by factoring costs of trading the asset if tradeable, or modifying it if modifiable, into her evaluations of future value $F_+(z)dz$, and so from present value too. I consequently interpret (A2.4) to mean

$$dPV(x) = F_+(z)e^{-r(x)(z-x)}dz \quad \text{and} \quad F_+(z)dz = dPV(x)e^{r(x)(z-x)}. \qquad \text{(A2.5)}$$

The value of the whole asset $V(x)$ at time x will be the sum or integral of present values of all foreseen cash flows both negative and positive over (x, ω), where ω (*omega*) is the foreseen end point of flows. ω may be infinity ∞ . Thus

$$V(x) = PV(x) = \int_x^{\omega} F(z)e^{-r(x)(z-x)}dz, \quad x <= z <= \omega \ . \qquad \text{(A2.6)}$$

The terms value and total capital are interchangeable, as are their notations V and K_T.

Present cost $PC(x)$ evaluates $V(x)$ as the sum or integral of earlier negative cash flows compounded at rate r since moment of investment u, and not yet decapitalized in positive cash flow. The counterpart to (A2.1) becomes

$$dIC(u) = F\_(u)du \quad \text{and} \quad dPC(x) = dV(x) = dPV(x) \ , \qquad \text{(A2.7)}$$

where IC is what I call "investment cost". The counterparts to (A2.2) and (A2.3) are

$$dV(x) = F\_(u)e^{q(x-u)}du \quad \text{and} \quad F\_(u)du = dV(x)e^{-q(x-u)} \ . \qquad \text{(A2.8)}$$

q here equals some appropriate r by the same logic as before. Here again, we usually read interpretations of (A2.8) which treat the appropriate r as an integral of time preference or equivalently productivity rates over the interim (u,x). I however see dV(x) as determined by current rate r(x) whether derived by present cost or present value methods. If the original investor remains the current owner, and now finds her time preference rate different, she will have factored asset modification costs into her original decision to bid or invest. If not, she will have traded to someone whose time preference rate is better suited. My counterparts to (A2.1) and (A2.6) become

$$dV(x) = dPC(x) = F\_(u)e^{r(x)(x-u)}dx \quad \text{and} \quad F\_(u)du = dV(x)e^{-r(x)(x-u)} \qquad (A2.9)$$

and

$$V(x) = PC(x) = \int_0^x F(u)e^{r(x)(x-u)}\,du\,. \qquad (A2.10)$$

These equations seem the most straightforward reconciliation of the maximand rule, the convergence axioms and the evidence supporting risk theory. They describe individual assets over time, sometimes passing from one owner to another, rather than a given owner's total portfolio. We maximize return within current risk tolerance, recognize that it will change, and deduct present value of expected trading or asset modification costs from future value of flows while adding them to original value. This seems true to life. It allows discounting all expected positive flows over (x, z), and compounding all past negative ones over (0, x), at a single rate r(x) because of those adjustments to value or cost of flows. Tradition treats the flows as fixed givens, and the discount rate as a function of interim time between x and z or between 0 and x.

My interpretation that the time discount rate/rate of return we naturally apply in evaluating both present cost and present value is our time preference rate now, rather than some retrospective or prospective average, might seem counterintuitive. I propose it, even so, as the "time discount rule".

Analogy to the Firm

I follow convention by treating all transfer out as compensated by actual or imputed revenue. The part exhausted in taste satisfaction gets imputed revenue paid by the consumer satisfied. Not all revenue compensates transfer out, as revenue is usually defined as sales proceeds against which prior outside claims must be satisfied first. These are typically for labor and supplies in the case of the firm. Chapter 6 gave the logic in word equations. It begins with

$$\rho - \rho_{\mathrm{c}} = \rho_{\mathrm{e}} \, , \tag{A3.1}$$

where ρ is revenue, ρ_{c} is prior claims and ρ_{e} is "earned revenue" as a residual. Earned revenue, also called gross realized output, is thus remaining share of overall revenue earned by the firm or other entity that performed the sales, collected the proceeds, and paid the outside claims on them.

What the the firm or other contributor gives up to earn the earned revenue is the sum of its realized output Y_{ρ} and its recovered decapitalization D_{ρ}. Remember from (A1.4) that D_{ρ} includes any pure consumption realized by the owner of the source asset, although that could not apply where the owner is taken as a firm. The sum of Y_{ρ} and D_{ρ} gives its gross realized output. Then

$$Y_{\rho}\mathrm{gross} = \rho_{\mathrm{e}} = \mathrm{Y}_{\rho} + \mathrm{D}_{\rho} \, , \tag{A3.2}$$

where $\mathrm{Y}_{\rho}\mathrm{gross}$ is gross realized output. In Chapter 6, I also called $\mathrm{Y}_{\rho}\mathrm{gross}$ or ρ_{e} "gross positive cash flow". All mean the same. I will usually leave out the notation

ρ_e from now on, and refer to gross realized output Y_ρ gross alone.

Positive cash flow is that less plowback from revenue. This can be notated

$$F_+ = Y_\rho\text{gross} - \rho_{pb} = Y_\rho + D_\rho - \rho_{pb} \ , \tag{A3.3}$$

where ρ_{pb} is plowback. Negative cash flow is transfer in, notated τ_-. Thus

$$F_- = \tau_- \text{ and } F = F_+ - F_- = Y_\rho + D_\rho - \rho_{pb} - \tau_- \ . \tag{A3.4}$$

Cash flow F is the difference

$$F = F_+ - F_- = Y_\rho + D_\rho - \rho_{pl} - \tau_- \ . \tag{A3.5}$$

Gross output is gross realized output plus unrealized (or proprietary or self-invested) output. This can show as

$$Y_{gross} = Y_\rho\text{gross} + Y_s = Y_\rho + D_\rho + Y_s \ . \tag{A3.6}$$

Think of the subscript s as meaning saved or self-invested. As all output is either realized or unrealized, we have

$$Y = Y_s + Y_\rho \ .$$

The terms saved, self-invested, unrealized and proprietary will be taken as interchangeable.

(A3.6) combines with (A1.4) and (A1.5) to arrive at

$$\gamma_{+} = \mathrm{F}_{+} = \mathrm{Y}_{\rho}\mathrm{gross} - \rho_{\mathrm{pl}} \tag{A3.7}$$

at the scale of the total capital of the individual or any set of individuals. This fact will prove helpful in adjusting the Ben-Porath model and in next generation theory.

It should be borne in mind that transfer out and transfer in are both implicitly defined as net of plowback in the first place. Thus it would be wrong to suppose that negative cash flow is transfer in less plowback from revenue. That mistake would deduct plowback twice.

The Growth Truism

Growth of any asset of either factor is capitalization from outside plus capitalization from inside less decapitalization. This difference can also be called net capitalization. Capitalization from outside is simply transfer in τ_{-} . What are the other two?

Our first intuition would be that capitalization from inside is identical to unrealized output. Here we must be careful. Output is negative wherever the sum of growth (net capitalization) and cash flow falls below zero. This "deadweight loss" is implicitly uncovered decapitalization, meaning not recovered in cash flow. To subtract all including unrecovered decapitalization from the sum of transfer in and unrealized output would therefore subtract the unrecovered part twice.

To make this clear, define positive and negative output by

$$\mathrm{Y}(>0) = \max(\mathrm{Y},0) \quad \text{and} \quad Y(<0) = \max(-\mathrm{Y},0) = \lambda \ ,$$

where λ *(lambda)* is deadweight loss. Meanwhile negative output belongs in the unrealized component of output Y_s as with all effects on net capitalization not explained by transfer in or plowback from revenue. It is the random negative component in free growth. Then define positive and negative output and realized output more fully by

$$Y_s(>0) = \max(Y_s, 0), \quad Y_s(<0) = \max(-Y_s, 0) = \lambda, \quad Y_s = Y_s(>0) - \lambda, \tag{A4.1}$$

and

$$Y(>0) = \max(Y,0), \quad Y(<0) = \max(-Y,0) = \lambda \quad \text{and} \quad Y = Y(>0) - \lambda \;. \tag{A4.2}$$

There is also indirect capitalization from inside in the form of plowback from revenue. The growth truism sums these inflows less outflows as

$$\dot{K}_T = \tau_- + Y_s(>0) + \rho_{pl} - D = \tau_- + Y_s + \rho_{pl} - D_\rho \;, \tag{A4.3}$$

recalling that D_ρ shows recovered (realized) decapitalization.

At the scale of the total capital of any individual or set of them, (A1.5) and (A4.3) give

$$\dot{K}_T = \gamma_- + Y_s + \rho_{pl} - C_p \;. \tag{A4.4}$$

Human Cash Flow

Although I can't recall seeing the term "human cash flow" in any papers or textbooks of others, tradition defines the flow discounted to human capital as pay less Schultz' "pure investment". The flow so discounted is implicitly cash flow. I rename pure investment "invested consumption," and write the traditional view as

$$F_H = \pi - C_s \;, \qquad \text{(A5.1)}$$

where F_H is human cash flow, π (*pi*) is pay, and C_s is invested consumption. The subscript s, as usual, means saved or self-invested.

Pay π can be defined as the worker's literal or imputed revenue. Self-invested consumption C_s can be defined as any investment in human capital other than through self-invested work. This makes C_s all investment from outside in a sense. But that does not mean that it is limited to transfer in. There is also plowback from revenue (pay π), as when we spend pay on textbooks or tuition. I model "pay plowback" π_{pl} as minor in the world we know, but definitions must account for it. This I define

$$C_s = \tau(H)\_ + \pi_{pl} \quad \text{or} \quad t(H)\_ = C_s - \pi_{pl} \;, \qquad \text{(A5.2)}$$

where $\tau(H)\_$ is "human transfer in". This and (A1.2a), showing $F\_ = \tau\_$, give

$$F(H)\_ = \tau(H)\_ = C_s - \pi_{pl} \;. \qquad \text{(A5.3)}$$

(A3.1) and (A3.2), analyzing the firm, derived

$$\rho - \rho_c = Y_\rho \text{gross} = Y_\rho + D_\rho \;.$$

For human capital, this can show as

$$\pi - \pi_c = W_\rho \text{gross} = W_\rho + D(H)_\rho \;, \qquad \text{(A5.4)}$$

reading “pay less prior claims on pay equals earned pay equals gross realized work equals realized work plus realized (recovered) human depreciation”.

Prior claims means outflow (transfer out), from sources other than the direct receiver of revenue, which are recovered in it and owed back to them. Maintenance consumption can be defined as any transfer out from any asset of either factor, outside the human capital of the earner, which supports pay in the sense that any less maintenance consumption would have realized less pay. This meets every criterion of prior claims but one. Maintenance consumption is the prior claims meant by π_c in (A5.5) if and only if it is actually recovered in pay or so intended.

I gave my arguments that it is neither, but is rather exhausted in satisfying our taste for survival, in Chapter 6 and elsewhere. If I am right, (A5.4) gives

$$\pi_c = 0 \quad \text{and} \quad \pi = W_\rho + D(H)_\rho = W_\rho \text{gross} \ , \tag{A5.5}$$

so that pay would measure and compensate gross realized work. This is the pay rule.

By (A3.3), positive cash flow is gross realized output less plowback from revenue. That comes to

$$F(H)_+ = W_\rho \text{gross} - \pi_{pl} = \pi - \pi_{pl} \ . \tag{A5.6}$$

Now we have

$$F(H) = F(H)_+ - F(H)_- = \pi - \pi_{pl} - (C_s - \pi_{pl}) = \pi - \pi_{pl} - C_s + \pi_{pl} = \pi - C_s \ , \tag{A5.7}$$

as the application of (A3.5) to human capital. This confirms the traditional view (A5.1) if (A5.5) is right in interpreting prior claims on pay as zero.

If I was wrong there, and Quesnay and the physiocrats were right, some maintenance consumption would be recovered in revenue of its suppliers. Then I should have written something like $C = C_s + C_\tau + C_p$, where "transfer consumption" C_τ was the value recovered by suppliers. This mathematical possibility, which I do not claim to have disproved, explains why I do not claim that the pay rule is logical certainty as a whole. I claim certitude only for its most surprising feature: human depreciation is expected to be recovered in pay. The rest follows only if (A5.5) is right as I think it is. Meanwhile (A5.5) also gives

$$C = C_s + C_p \ , \qquad (A5.8)$$

where C is consumption.

Saved work W_s means the self-invested output of human capital. It includes the subliminal and effortless work of job experience as well as the effort and opportunity cost of literal schooling, and also includes any free growth of human capital. Then

$$W = W_s + W_\rho . \qquad (A5.9)$$

The growth truism (A4.3) for human capital becomes

$$\dot{H} = C_s + W_s(>0) - D(H) = C_s + W_s - D(H)_\rho . \qquad (A5.10)$$

Human Capital as Present Value

Note

$$g(F[H]) = g(\pi - C_s) = \frac{1}{\pi - C_s}\frac{d}{dt}(\pi - C_s) = \frac{\dot{\pi} - \dot{C}_s}{\pi - C_s}, \qquad \text{(A6.1)}$$

and also

$$f(H) = \frac{F(H)}{H} = \frac{\pi - C_s}{H} = \frac{\pi}{H} - \frac{C_s}{H}\ . \qquad \text{(A6.2)}$$

Pay π, literal and imputed, is the measure of gross realized work if I am right in (A5.5). I take this as meaning all adult productive activity not self-invested. Then the ratios π / H and C_s / H, the ratio of invested consumption to human capital, might both be intuited as biological norms, like the generation length, which tend to hold steady over time. Meanwhile the definition $f = F / K_T$ in (A1.6) and (A1.6a) is applied to human capital as

$$H = \frac{F(H)}{f(H)} = \frac{\pi - C_s}{f(H)}\ . \qquad \text{(A6.3)}$$

What we want is to quantify f(H) in order to reveal H from measured or modeled $\pi - C_s$. Next generation theory measures cash flow rate of total capital, which simplifies to the pure consumption rate, at 3.5% a year as a reciprocal of the generation length. I argued that the risk component in rate of return is captured in cash flow rate, rather than growth rate, that return at any given moment varies only with risk, and that human capital as a whole should prove the riskier and higher-return factor. Then f(H) should prove generally higher than 3.5% per year.

That could give the key to quantifying collective human capital through (A6.3). I will not attempt that step here. A reason is that national accounts reflect pay mixed with profit when reporting income of proprietorships. I would rather trust an expert in national accounts to tease them apart, and to judge whatever pay should be imputed to people in the household sector not literally employed.

The Level Payment Mortgage

(A2.5) gives

$$V(x)=F\int_0^{\omega} F(z)e^{-r(x)(z-x)}\,dz \ . \qquad \text{(A7.1)}$$

Consider the level payment mortgage. F(z) is the constant level payment while r(x) is the constant interest rate Here (A2.5) simplifies to

$$V(x)=F\int_x^{\omega} e^{-r(z-x)}\,dz=Fe^{rx}\int_x^{\omega} e^{-rz}\,dz=\frac{F}{r}\left[1-e^{-r(\omega-x)}\right] . \qquad \text{(A7.2)}$$

As there is no self-invested output, and no negative cash flow after initial investment at time 0, decapitilization (amortization) simplifies to $-\dot{V}(x)$. Thus

$$D(x)=-V'(x)=-\frac{d}{dx}\frac{F}{r}\left[1-e^{-r\omega}e^{rx}\right]=\frac{F}{r}e^{-r\omega}\frac{d}{dx}e^{rx}=\frac{F}{e^{r\omega}}e^{rx} \ , \qquad \text{(A7.3)}$$

confirming that amortization increases exponentially over the term of the mortgage.

Depreciation Theory

Depreciation can be defined as decapitalization which is a function of time since capitalization alone. When assets change hands, depreciation continues unchanged. Depletion and liquidation in sale, by contrast, are options available at any asset age. Amortization can be given the same definition as depreciation, but is customarily applied to paper rights such as the mortgage rather than to physical or human capital itself.

Depreciation of those assets is not as simple as with the mortgage. Cash flow F and discount rate r are typically variables rather than constants. Depreciation theory avoids that complexity, much as accountants do, by treating each successive investment in an asset as if it were a separate asset depreciating in itself.

(A2.5) through (A2.10) gave present value at time x of a differential foreseen positive cash flow at future time z as

$$dPV(x) = F_{+}(z)e^{-r(x)(z-x)}dz\,, \qquad \text{(A8.1)}$$

where the differential present value arose from a earlier or concurrent negative cash flow invested at time $u <= x$. It was shown that all of asset value $PV(x)$ at any time x can be explained as a sum or integral of such differential increments evolving with time alone from investment to eventual realization.

Meanwhile all output within the differential increment of dPV is self invested. Growth dPV can be understood either as this self-invested output or equivalently the shortening discount period, as each means growth at rate r. At interim moment t it is

$$dPV'(t) = r(x)dPV(t) = F(z)e^{-r(x)(z-t)}dt = \frac{r(x)F(e)}{e^{r(x)z}}e^{r(x)t}\ , \qquad x <= t < z\ . \qquad \text{(A8.2)}$$

Thus present value rises exponentially as long as the moment of cash flow is deferred.

At moment z, self-invested output ends and all change in value is explained by depreciation alone. It equals the entire accumulated value of dPV at final moment z. That is,

$$D(z)dz = -dPV'(z)dz = dPV(z) = dPV(x)e^{r(x)(z-x)} . \qquad (A8.3)$$

The following table shows some illustrations:

Depreciation Factor $e^{r(x)(z-x)}$ if $z-x$ is 50 Years

Interim $z-x$ (years):	0	10	20	30	40	50
Factor if $r(x) = .035$:	.174	.247	.350	.497	.705	1
Factor if $r(x) = .065$:	.039	.074	.142	.273	.522	1

This exactly reverses the analysis applied in national accounts, which models the factor as decreasing rather than rising exponentially.

It should be stressed that these equations and this table describe each successive differential increment of outside investment (transfer in), not assets overall or groups of them. If transfer in were constant and continuous in an asset or group, other things equal, overall depreciation would show as linear.

Free Growth Theory

By the total return truism (A1.6a), showing r = g + f, we derive

$$g = r - f, \qquad dg = dr - df, \qquad \text{and} \qquad \Delta g = \Delta r - \Delta f . \qquad (A9.1)$$

dg or Δg is “acceleration”, dr or Δr is “productivity gain” or “free growth rate” and $-df$ or $-\Delta f$ is “thrift gain”. Divide by acceleration to reach

$$\frac{dr}{dg}-\frac{df}{dg}=\frac{drdt}{dtdg}-\frac{dfdt}{dtdg}=\frac{\dot{r}}{\dot{g}}-\frac{\dot{f}}{\dot{g}}=1 \quad \text{and} \quad \frac{\Delta r}{\Delta g}-\frac{\Delta f}{\Delta g}=1\,. \qquad \text{(A9.2)}$$

drK_T or ΔrK_T give free growth as a flow, while $-dfK_T$ or $-\Delta dfK_T$ give the flow of thrift.

Define the "productivity index" or "free growth index" φ (*phi*) as $\dot{r}/\dot{g}$ or $\Delta r/\Delta g$, and the "thrift index" θ (*theta*) as $-\dot{f}/\dot{g}$ or $-\Delta f/\Delta g$. (A9.2) can then be put as

$$\varphi+\theta=1\ , \qquad \text{(A9.2a)}$$

in either the continuous time or discrete period sense.

Free growth theory is the prediction that φ at the collective scale will average unity (the number one), implying that θ averages zero, when φ or θ is measured for each year or for shorter periods if practical. Thrift theory makes the opposite prediction $\theta \rightarrow 1$ and $\varphi \rightarrow 0$. The point is to compare simultaneous changes in acceleration and thrift, and then find the long-term average of these simultaneous observations, rather than compare long-term changes in the first place. If free growth is right, they will prove uncorrelated. That is exactly what the charts and tables show whenever data are available. Acceleration is as likely to coincide with unthrift, meaning increase in consumption rate C/K, as with thrift.

Division of (A9.1) by acceleration was not essential to the logic. It added the convenience of index numbers totaling unity.

The test should be as fine-grained as practical. If the Piketty-Zucman website showed quarterly or monthly data revealing any two of r, f and g, I would have averaged the largest number of shortest periods. What I try to compare is *ex ante* acceleration, measured as thrift $-\Delta c$, and *ex post* acceleration Δg at the same moment. Otherwise we don't have the clearest test between free growth and thrift theories. Both agree that consumption can keep pace with output and capital over time. Free growth theory asserts that they keep pace continuously.

Correlations tell the same story. Tables show that coefficients between r and g run about 1, as with the free growth index, while correlations between f and g run about zero.

I do not claim that anyone but Mill and I has actually proposed free growth theory, nor that anyone at all has proposed thrift theory as here defined. It is my impression, not assertion, that modern consensus fits thrift theory given Harrod's qualifier that attempted (*ex ante*) net saving (thrift) must not exceed the technological growth rate (warranted growth path). My impression is that Solow and modern tradition agree, but blunt Harrod's knife edge. Free growth theory counters that the same growth arrives costlessly when *ex ante* net saving/investment is held at zero. Nor do I claim that data shown in my charts and tables prove free growth theory. Rather they demonstrate that all growth has proved free wherever measured to date.

Saving/Investment

Unlike Lord Keynes and modern tradition, I define saving and investment as synonymous from the start. I don't strictly need either term. My "transfer in", "unrealized output" and "plowback" arrive at the same thing. But I know I must do my best to write in a language already understood. I will usually say "investment" to mean saving/investment, and will use Keynes' notation I for both.

Keynes did not explicitly recognize human capital, although he very probably understood it. He treated investment in physical capital only. I notate this I(K). I also treat investment in total capital, to be notated $I(K_T)$. Each, as in Keynes, sums depreciation recovery and "net investment". The latter, in my treatment, is considered in both *ex ante* and *ex post* versions. The subscripts xa and xp will show which.

Ex ante net investment can be notated $I(K_T)_{xa}$ and defined as identical to thrift flow $-df(K_T)$ or $-\Delta f(K_T)$. Its rate is the same as thrift rate $-df$ or $-\Delta f$. *Ex post* net investment is actual growth $\dot{K}_T$ or $\Delta K_T / \Delta t$ as a flow, and $\dot{g}$ or $\Delta K_T / (K_T \Delta t)$ as a rate. Free growth theory, supported by data wherever tested, predicts that thrift or *ex ante* net investment at the collective scale sacrifices cash flow (pure consumption) with no growth to compensate. My interpretation is that the optimum collective *ex ante* net investment rate is zero, or equivalently that optimum investment is current cost depreciation plowback from both factors. Then optimum *ex ante* net investment becomes

$$I(K_T)_{xa}\text{, optimum} = 0, \quad \text{at the collective scale.} \qquad \text{(A9.3)}$$

(Net) output Y at that scale is total capital growth (net investment of both factors) plus pure consumption. Here too we can distinguish *ex ante* output as pure consumption plus *ex ante* investment, while *ex post* output is pure consumption plus *ex post* net investment. (9.3) gives

$$Y_{xa}\text{optimum} = C_p, \quad \text{at the collective scale,} \qquad \text{(A9.4)}$$

where Y_{xa} is *ex ante* output.

Since (gross) investment equals net investment plus makeup for decaptalization, while decapitalization equals pure consumption C_p collectively by (A1.4a), we can show $I(K_T)_{xa}\text{optimum} = C_p$ as an alternate statement of (A9.4).

Summarizing,

$$I(K_T)_{xa}\text{optimum} = Y_{xa}\text{optimum} = C_p\ , \quad \text{at the collective scale,} \qquad \text{(A9.5)}$$

if free growth theory is correct.

Ex ante investment and output mean at cost. They are what we pay for. The practical importance of (A9.5) is as a guide to macroeconomic policy. It says that we cannot grow collectively by attempting to produce more than we consume. We do best by paying to produce just as much, and taking free growth as it comes.

(A9.5) does not say that we cannot influence the growth tides. It says that we cannot do so by thrift. It seems to be me that growth theory lies somewhere in the province of historicism and institutionalism rather than in the mechanics of supply and demand. Judging from history, old and new, growth seems to find traction in free markets where laws and customs welcome it. These are institutions shaped by history.

Free growth theory and its equations predict at the collective scale only. Clearly the Practical Pig can save out of the dissaving of his feckless brothers, while the individual life cycle is largely a story of each generation giving to the next.

Adjusting the Ben-Porath Model

Human capital begins at zero value at cohort age 0. Invested consumption C_s starts now, and is immediately compounded by self-invested work of the young. This means all work before pay begins at age of adulthood and independence A. As human depreciation is expected to be recovered in pay, that flow too is put off until age A. Then cohort present cost at any earlier age x, as defined in (A2.10), is

$$H(x) = \int_0^x C_s(z)e^{r(x)(x-z)}dz\ , \quad \text{if} \quad x <= A\,. \qquad \text{(A10.1)}$$

I argued that outside investment in human young, including the unpaid work of parenting, might not be far from constant. School costs rise as parenting costs decline. (A10.1) in that case gives

$$H(x)=\frac{C_s}{r(x)}\left(e^{r(x)x}-1\right), \quad \text{if } x<=A. \tag{A10.2}$$

At maturity (A10.1) becomes

$$H(A)=\int_0^A C_s(z)e^{r(A)(A-z)}dz. \tag{A10.3}$$

H in adulthood is easiest to model at present value rather than present cost. Human cash flow is pay π less C_s. Discounted cash flow becomes

$$H(x)=\int_x^{\omega}(\pi-C_s)(z)e^{r(x)(z-x)}dz, \quad \text{if} \quad x>=A, \tag{A10.4}$$

where r(z) now is best understood as time preference rate. This is identical to expected rate of return, as shown in the diamond ring parable. Note that there is no explicit adjustment for asset risk. I argue that human capital is not inherently riskier than physical capital, but rather adapts to the risk tolerance of its owner. It is riskier collectively because owned disproportionately by the risk-tolerant young. I treat risk profile as a function of the owner's age, gender and wealth. (A10.4) describes cohort value, and so neglects individual differences in gender and wealth as already captured in the characteristics of the cohort.

I model C_s as negligible in adulthood because I see so little of it. That would reduce adult human cash flow to pay alone, and so simplify (A10.4) to

$$H(x) = \int_x^{\omega} \pi(z) e^{-r(x)(z-x)} dz\,, \quad \text{if} \quad C_s = 0 \quad \text{and} \quad x \geq A\,. \tag{A10.5}$$

Now let's add some detail and bring in physical capital. Like most, I model inheritance as zero and physical capital acquisition as beginning after age of independence A. That can be modeled as age 20. As human depreciation begins then at zero, if depreciation theory is right, gross realized work (pay) simplifies at first to realized work. This takes up all the new worker's time and attention, yet simultaneously enables subliminal self-invested work in job experience.

It seems reasonable to model pay at job entry as equal to the new worker's maintenance consumption, on the reasoning that independence means reaching the ability to earn it. Thus nothing is left for investment in physical capital at first. But the quick buildup of job experience soon means pay left for investment. As I model no pay plowback, that means physical capital acquisition.

Human depreciation rises slowly while the self-invested work of job experience diminishes, so that overall growth in human capital peaks and then declines. Physical capital owned does the same as we acquire it and then spend it on the young. Young arrive, on average, as a cohort reaches age 28.5 (my estimate of the generation length). The cohort of adults begins divesting its capital of both factors in nurture and schooling received by the young as invested consumption.

The young reach independence on average when the adult cohort reaches age 57 (2 x 28.5). Some young will have been born after parental age 28.5, and will continue to receive parental investment over the eight years remaining between age 57 and retirement modeled at age 65. But my model cannot account confidently for this eight year gap on the whole, or for the retirement period following, which runs twice as long. My hypothesis is that retirees are effectively employees hired by productives to help take care of the kids, while the eight-year gap might show a human capital reserve against nasty surprises.

Retirement can be defined in principle as the period when our pay, literal or imputed, no longer covers our maintenance consumption needs. Human capital continues, even so, as long as we earn any imputed pay for helping take care of ourselves and others. Maintenance is not investment $\mathrm{C_s}$, and is not deducted in finding our cash flow and its present value.

(A4.4) showed the growth truism for total capital of any individual as

$$\dot{\mathrm{K}}_{\mathrm{T}} = \gamma\_ + \mathrm{Y_s} + \rho_{\mathrm{pl}} - \mathrm{D}_{\rho} \ ,$$

recalling that $\gamma\_$ is gift received, $\mathrm{Y_s}$ is self-invested (unrealized) output of both factors, ρ_{pl} is plowback from realized output, and D_{ρ} is recovered decapitalization. For the young under age A, I model $\mathrm{K_T}$ as H alone, $\gamma\_$ as invested consumption provided by adults, $\mathrm{Y_s gross}$ as self-invested work, which I model as all work, and D_{ρ} as zero. Thus (A4.4) is interpreted as

$$\dot{\mathrm{K}}_{\mathrm{T}} = \dot{\mathrm{H}} = \mathrm{C_s} + \mathrm{W_s} = \mathrm{C_s} + \mathrm{W} = \mathrm{C_s} + \mathrm{rH} \ , \quad \text{if age} \quad <= \mathrm{A} \ , \qquad \text{(A10.5)}$$

leading directly to (A10.1)

For adults I model gift received $\gamma\_$ as zero. As physical capital acquisition is modeled as beginning at independence (age A), $\mathrm{Y_s}$ now becomes self-invested output for both factors. Let this show as $\mathrm{P_s}$ for physical capital. ρ_{pl} means pay plowback π_{pl} plus plowback from revenue of physical capital, as with the firm. That can show as $\rho(\mathrm{K})_{\mathrm{pl}}$. But I model π_{pl} as zero because I see so little of it. Rather I allow reinvestment of pay into physical capital holdings. That can be notated π_τ . I don't allow transfer from physical to human capital in adults, which would mean invested consumption C_s afforded from property cash flow, because I see so little adult C_s (adult education) on which to spend it. That's why I model π_{pl} as zero. Meanwhile realized decapitalizaiton is decomposed into its human and physical components $D(H)_\rho$ and $D(K)_\rho$. This adapts (A4.4) to

$$\dot{K}_T = \dot{H} + \dot{K} = W_s + P_s + \rho(K)_{pl} + \pi_\tau - D(H)_\rho - D(K)_\rho \text{ , if age} >= A \text{ ,} \qquad \text{(A10.6)}$$

and specifically

$$\dot{H} = W_s - D(H)_\rho \quad \text{and} \quad \dot{K} = \pi_\tau + P_s + \rho(K)_{pl} - D(K)_\rho \text{, if age} >= A \text{ .}$$

(A10.7)

Next Generation Theory

The period of production, as defined by Jevons and Boehm Bawerk, gave the reciprocal of rate of production (rate of return Y/K_T) if growth were zero. Output Y equals growth plus cash flow. Then Jevons and Boehm Bawerk really meant the period needed for output to make up for losses to cash flow. I call this the "cash flow period" T_F , equal to the reciprocal of cash flow rate f. That is,

$$T_F = \frac{1}{f} \text{ .} \qquad \text{(A11.1)}$$

Both modeled at the collective scale, where cash flow under the Y = I + C equation both would have accepted simplifies to consumption C. Adjustment to the Y rule corrects this to pure consumption C_p . That would specify (A11.1) as

$$T_F = \frac{1}{C_p}, \quad \text{at the collective scale.} \qquad \text{(A11.1a)}$$

recalling that c_p is pure consumption rate C_p / K_T.

Rae, Jevons and Boehm Bawerk all got nowhere because they modeled physical capital only. Jevons, in particular, saw the productive cycle as the wage fund reproducing itself as it was used up in consumption per (A11.1). He was close. (A11.1a) models it as total capital reproducing itself as it is used up in pure consumption. My next generation theory, really Petty's, posits the generation length as the deadline for transmitting all fitness (total capital) from each generation to the next.

The generation length in R.A. Fisher's sense is average age difference between both parents and all offspring from first births to last weighted equally. It is a flexible biological norm. It was probably well over 30 years before 1900 or so, when high infant mortality compelled longer breeding to ensure that two would survive to breed again. Contraception, known since Roman times, was then less practiced. It seems to run a little under 30 years today in industrial countries. I model it at 28.5 years. That gives

$$T_F = 28.5 \text{ years} \quad \text{and} \quad c_p = \frac{1}{T_F} = .035/\text{year} . \qquad \text{(A11.2)}$$

(A9.5), inferred from free growth theory, already gives

$$I(K_T)_{xa} \text{optimum} = Y_{xa} \text{optimum} = c_p , \quad \text{at the collective scale.}$$

This shows that the output we actually control, meaning *ex ante* output, is optimized at just enough to make up losses to pure consumption. Next generation theory specifies that the loss and make-up period equals the generation length.

Under the simplifying assumptions of the life cycle model adapted from Ben-Porath, we would meet that deadline by directing all adult gross realized output less property plowback $\rho(\mathrm{K})_{\mathrm{pl}}$ to gift to the immediate generation of young received as their invested consumption. The young would add their part by compounding that outside investment into their human capital at the rate of their entire *ex ante* output. This would prove the most straightforward strategy to exhaust and replace all total capital by the deadline exactly. This is just as in my adjusted Ben-Porath model with the addition of the specified deadline.

Here as there, I describe adults collectively and the young collectively. I will not attempt to model effects of kin selection in individual investment choices. But I have intended to lay a groundwork. Investment, in Hamilton's sense, translates to gift γ_{+} in economic terms. It is a flow of total capital (fitness) from donor to donee. At the individual scale, as well as for the group scale, it equals gross realized output less plowback. Gross realized output tends to be a continuous flow, as we see in pay, rather than one easily sped up or slowed down. This gives an idea of the time constraints I mentioned in critiquing Hamilton's rule.

Evolution and Human Choice over Time

Alan R. Rogers*†

1997

1 The connection between evolution and economics

In economics, equilibria are often found by equating two versions of the *marginal rate of substitution* (MRS). For example, my MRS in preferences (the ratio at which I am "just willing" to exchange two goods) should equal the MRS in exchange (the ratio at which I can exchange them in the market). Otherwise, I would have reason to sell one good and buy the other. At equilibrium (as shown in figure 1) these two versions of the MRS must be equal.

This analysis is also familiar to evolutionary ecologists, as shown in figure 2. There, the indifference curves are replaced by *fitness isograms*, which connect points of equal Darwinian fitness.[1] In place of a budget constraint, ecologists study a variety of other constraints. The principle, however, is the same: equilibrium occurs at the point where the two curves have equal slope.

These two forms of analysis are connected by something deeper than analogy. They are connected by a third equilibrium principle, which was first described by Hansson and Stuart [12]. These authors define the *MRS in fitness* as the ratio at which two goods can be exchanged without affecting Darwinian fitness. Thus, the MRS in fitness measures the absolute slope of the dotted lines in figure 2. The new equilibrium principle asserts that, at evolutionary equilibrium, the MRS in fitness must equal that in preferences. A simple proof of this principle is shown in figure 3.

The new equilibrium principle adds an additional equation to the arsenal of economics. The MRS in preferences must now equal that in fitness as well as those in exchange and production. If the hypothesis of evolutionary equilibrium turns out to be useful, then this should allow a more powerful theory of economics.

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[1] In models with discrete generations, Darwinian fitness is the conditionally expected number of an individual's offspring, given its genotype. In models with overlapping generations, fitness is measured by R. A. Fisher's [8] "Malthusian parameter," which measures the asymptotic rate of exponential increase in the numbers of one's descendants [2].

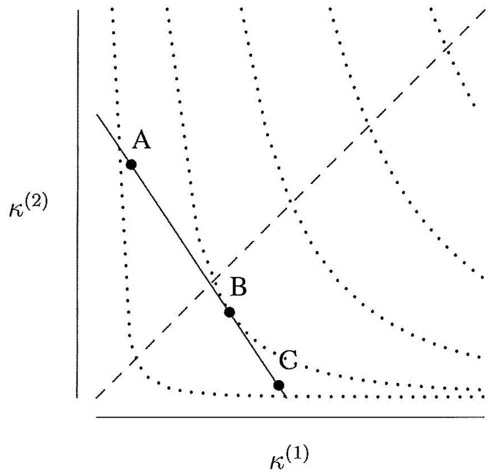

Figure 1: The Indifference Diagram of Economics

An individual consumes a quantity $\kappa^{(1)}$ of good 1, and $\kappa^{(2)}$ of good 2. The dotted *indifference curves* connect consumption bundles to which he is indifferent. By buying or selling, the consumer moves left or right along the solid *budget line*. Utility is maximized at the point where the two lines have equal slope, or in other words, at the point where $MRS_P = MRS_E$.

2 Application to time preference

Suppose that, in figure 1, good 1 refers to food that is consumed today, and good 2 to food that is consumed τ time units later. With this interpretation, the figure describes preferences regarding different paths of consumption over time, or in other words, *time preference*. In a recent paper [15], I developed an evolutionary theory of time preference using the methods outlined above. That paper simplified the problem by assuming that changes in consumption affect fitness solely via their effect on survival. Here, I extend that analysis to incorporate effects on fertility as well.

The analysis proceeds by deriving an expression for the MRS in fitness, and setting this equal to well-known expressions for the MRS in preferences and in exchange. I begin with a series of definitions.

2.1 Definitions

The MRS in preferences between immediate and delayed consumption is defined by

$$MRS_P \equiv - \left. \frac{d\kappa^{(2)}}{d\kappa^{(1)}} \right|_{U \text{ constant}}$$

where the derivative is taken along a line of constant utility U, i.e. an indifference curve. The MRS in preferences is often measured by θ, the *marginal rate of time preference* (MRTP), which defined

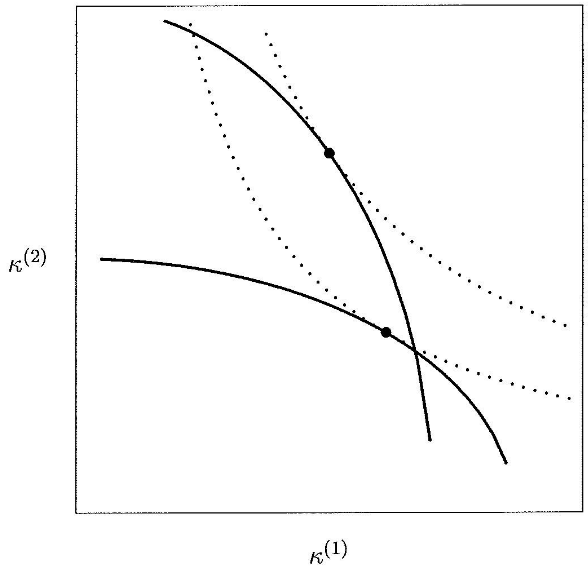

Figure 2: Constrained Optimization in Evolution

Darwinian fitness increases with increasing values of characters $\kappa^{(1)}$ and $\kappa^{(2)}$, and the dotted *fitness isograms* connect points of equal fitness. The two solid *constraint lines* illustrate two different hypotheses about which combinations of $\kappa^{(1)}$ and $\kappa^{(2)}$ are feasible. For any assumed constraint, the evolutionary problem is to choose the point on the constraint line that maximizes fitness. This constrained optimum occurs where the constraint line and fitness isogram have equal slope, i.e. where $MRS_C = MRS_F$.

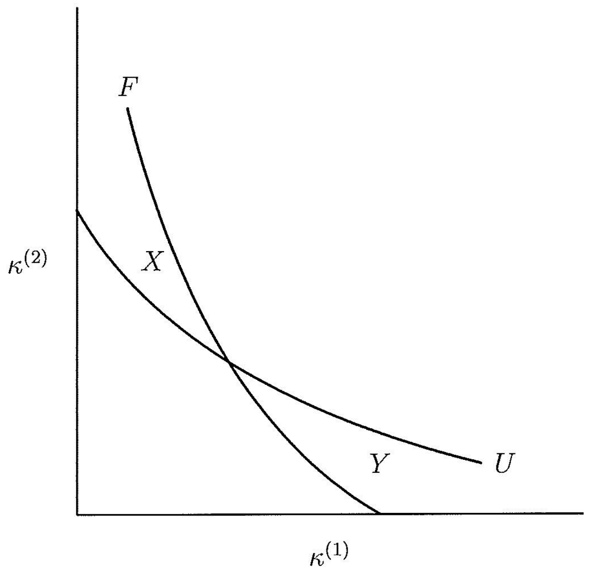

Figure 3: Why the MRS in fitness equals that in preferences at evolutionary equilibrium Fitness and utility each depend on consumption of commodities $\kappa^{(1)}$ and $\kappa^{(2)}$. If the MRS in fitness did not equal that in preferences, then the isograms of the fitness function F would cross those of the utility function U, as shown in the figure. There would then exist consumption bundles, X and Y, such that X is preferred to Y although Y confers the higher fitness. This preference ordering cannot be evolutionarily stable because a mutation that reversed the preference between X and Y would be favored by selection.

by

$$MRS_P \equiv e^{\theta\tau} \tag{1}$$

where as before τ is the time that elapses between $\kappa^{(1)}$ and $\kappa^{(2)}$. The MRS in exchange between present and future consumption is the ratio at which present and future consumption can be exchanged by borrowing and lending. It is related to the interest rate i by

$$MRS_E \equiv - \left.\frac{d\kappa^{(2)}}{d\kappa^{(1)})}\right|_{W \text{ constant}} \equiv e^{i\tau} \tag{2}$$

where W is wealth and the derivative is taken along a line of constant wealth, that is, along the solid market line in figure 1. The MRS in fitness is defined by

$$MRS_F \equiv - \left.\frac{d\kappa^{(2)}}{d\kappa^{(1)}}\right|_{F \text{ constant}} \tag{3}$$

where the derivative is taken along a line of constant fitness F. In equilibrium, all these versions of the MRS must be equal.

2.2 Finding the MRS in fitness

The evolutionary theory of time preference is complicated by the possibility that the returns from an investment may increase the Darwinian fitness of the investor's daughter (or other relative) rather than that of the investor herself. This makes it necessary to use the evolutionary theory of "kin selection," which deals with interactions between relatives [9, 10].

The particular model used here was developed in another context [14], and its application to the economic problem of time preference is discussed elsewhere [15]. Rather than repeat that material here, I shall simply state the relevant results.

2.2.1 Results from the evolutionary theory of kin selection

The theory supposes that one individual (the donor or investor) undertakes an investment that has an immediate effect on himself, but a delayed effect on a second individual (the recipient). The donor and recipient may or may not be the same individual. The donor undertakes his action at age $x^{(1)}$, and the recipient is affected after τ time units, when the recipient's age is $x^{(2)}$. This interaction changes from $P^{(1)}$ to $P^{(1)} + \Delta P^{(1)}$ the donor's probability of surviving from age $x^{(1)}$ to $x^{(1)} + dx$. The donor's fertility during this same interval is changed from $m^{(1)}$ to $m^{(1)} + \Delta m^{(1)}$. Similarly, the interaction changes from $P^{(2)}$ to $P^{(2)} + \Delta P^{(2)}$ the recipient's probability of surviving from age $x^{(2)}$ to $x^{(2)} + dx$. The recipient's fertility during this interval is changed from $m^{(2)}$ to $m^{(2)} + \Delta m^{(2)}$.

The effect of this interaction on Darwinian fitness are summarized in table 1, which is adapted from table 1 of [14]. Unlike the table used in my earlier work on time preference [15], this one includes effects on fertility as well as on mortality. In the table, r denotes the *coefficient of relationship* between donor and recipient,[2] the subscripts D and R indicate the sex of the donor and of

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[2] Wright's coefficient of relationship [5, pp. 69, 137–138] can be interpreted as the fraction of their genes that two individuals can expect to hold in common. It equals 1 if the donor and recipient are the same individual, 1/2 if the recipient is an offspring, 1/4 if a grandchild, and so forth.

Table 1: How Changes in Fertility and Mortality Affect Fitness

Effect on	Additive change	Reproductive value	Discount factor	Relationship to donor
Donor				
A. fert.	$\Delta m^{(1)}$	1	$e^{-\rho x^{(1)}}$	1
B. mort.	$\Delta P^{(1)}$	$v^{(1)}$	$e^{-\rho(x^{(1)}+dx)}$	1
Recipient				
C. fert.	$\Delta m^{(2)}$	1	$e^{-\rho(x^{(1)}+\tau)}$	r
D. mort.	$\Delta P^{(2)}$	$v^{(2)}$	$e^{-\rho(x^{(1)}+\tau+dx)}$	r

Notes: The altruist allele will increase (decrease) in frequency if the sum of row products is positive (negative). The notation is defined in the text. For simplicity, I assume that the sex ratio at birth is unity, that effects on fertility are brief, that these effects are small enough that second-order terms in Δm and ΔP can be ignored, and that a single recipient is affected by each altruistic act.
Source: Rogers [14, Table 1]

the recipient, and v denotes the *reproductive value* (R. A. Fisher, 1958). It is defined by

$$v \equiv \frac{\sum_{y=x}^{\infty} e^{-\rho y} l_g(y) m_g(y)}{e^{-\rho x} l_g(x)} \tag{4}$$

where ρ is the rate of population growth, $l_g(y)$ the probability of living to age y, $m_g(y)$ the expected number of offspring produced at that age, and the subscript g indicates the individual's sex. The reproductive value can be interpreted as the expected present value of an individual's future contributions to the gene pool.

A gene that encourages the donor to undertake this action will be favored by natural selection if the sum of the row-products in table 1 is positive, or disfavored if that sum is negative.

2.2.2 The MRS in fitness

An interaction is selectively neutral—having no effect on fitness—if the sum of row-products in table 1 is zero, i.e. if

$$\begin{aligned} 0 = {} & \Delta m^{(1)} e^{-\rho x^{(1)}} + \Delta P^{(1)} v^{(1)} e^{-\rho x^{(1)}} \\ & + \Delta m^{(2)} e^{-\rho(x^{(1)}+\tau)} r + \Delta P^{(2)} v^{(2)} e^{-\rho(x^{(1)}+\tau)} r \end{aligned} \tag{5}$$

Here, I have assumed that effects on mortality are brief so that $dx \approx 0$. When this equation holds, the interaction (or investment) described above moves us along a fitness isogram. Thus, the equation holds the key to the slope of this isogram, the MRS in fitness. But before proceeding, it will be useful to recast the equation in terms of changes in consumption.

I now assume that fertility and mortality are both differentiable functions of consumption.

$$\begin{aligned} P &= P(x, \kappa) \\ m &= m(x, \kappa) \end{aligned}$$

where κ is consumption at age x. Furthermore, I assume that the fertility and mortality effects in the table were produced by changes in consumption. Specifically, the donor's consumption at age $x^{(1)}$ changed from $\kappa^{(1)}$ to $\kappa^{(1)} + \Delta\kappa^{(1)}$, while that of the recipient changed from $\kappa^{(2)}$ to $\kappa^{(2)} + \Delta\kappa^{(2)}$. If these changes are small, then the fertility and mortality effects are

$$\begin{aligned} \Delta P &\approx \Delta\kappa P_\kappa(x) & (6) \\ \Delta m &\approx \Delta\kappa m_\kappa(x) & (7) \end{aligned}$$

where $P_\kappa \equiv \partial P(x,\kappa)/\partial\kappa$ is the marginal effect of consumption on survival, and $m_\kappa \equiv \partial m(x,\kappa)/\partial\kappa$ the marginal effect on fertility. Substituting these into equation 5 and rearranging gives the MRS in fitness,

$$MRS_F \equiv -\frac{\Delta\kappa^{(2)}}{\Delta\kappa^{(1)}} = \left(\frac{e^{\rho\tau}}{r}\right)\left(\frac{m_\kappa^{(1)} + P_\kappa^{(1)} v^{(1)}}{m_\kappa^{(2)} + P_\kappa^{(2)} v^{(2)}}\right) \tag{8}$$

This generalizes Eqn. 7 of my earlier paper [15], which excluded the marginal effect of consumption on fertility.

2.2.3 The long-term real rate of interest

The long-term interest rate is found by setting setting

$$MRS_F = e^{i\tau} \tag{9}$$

where i is the interest rate over delay τ. This procedure equates the *MRS* in fitness (the left-hand side of the equation) with that in exchange (the right-hand side), and is justified as follows. The argument in figure 3 shows that, in evolutionary equilibrium, the MRS in fitness must equal that in preferences. Furthermore, in market equilibrium the MRS in preferences must equal that in exchange. In studying equation 9, we are examining the implications of the hypothesis that both equilibrium assumptions hold true.

As in my previous paper on time preference, I concentrate on intergenerational investments in which the investment benefits the investor's daughter after exactly one generation. By assumption, the mother and daughter are affected at the same age, so that the two reproductive values in MRS_F are equal. In stationary equilibrium, the mother and daughter will also have equal wealth at this common age, so that the marginal effects of consumption on their fertility and survival are equal as well. Consequently, the right-most fraction in equation 8 equals unity, and $MRS_F = e^{\rho\tau}/r$, where $r = 1/2$ (since the two individuals are mother and daughter), and τ equals the generation length, T. Equation 9 becomes $2e^{\rho T} = e^{iT}$, or

$$i = (\ln 2)/T + \rho \tag{10}$$

The relevant rate of population growth is not the current one, but some sort of average rate over recent evolutionary history. Since evolutionary changes are usually slow, the last couple of centuries of rapid growth have probably had no large effect. Prior to that, ρ must on average have been near zero. Thus, equation 10 suggests that $i \approx (\ln 2)/T$. The generation time T is usually a little less than 30 years in human populations. For example, $T = 28.9$ in the 1906 population of Taiwan [11]. Thus, if $\rho \approx 0$, selection should favor long-term interest rates that average $(\ln 2)/28.9 = 0.024$ per year, in reasonable agreement with observation.

These results are identical to those of my earlier paper on time preference [15, Eqn. 12], and extend those results to the more general context in which selection acts via fertility as well as mortality.

2.3 Diminishing marginal returns to consumption

I now introduce the standard assumptions of economic analysis: that consumption helps in some sense and that each successive unit of consumption helps less than the last. In the present context, this will mean both that $m(x)$ and $P(x)$ each increase with consumption, and also that marginal effects decline as consumption increases.

Although these assumptions are unremarkable in economics, they may seem problematic here. Eating too much can be bad for you, and animals on restricted diets often seem to live longer than those with unrestricted access to food [7, Sec. 10.3.1]. Yet this is no real cause for skepticism: food is just one of many consumer goods, and wealthy people do live longer than poor ones.

To capture the diminishing marginal effect of consumption, I will assume that

$$\begin{aligned} m(x,\kappa) &\equiv m^*(x)\kappa^\alpha \\ P(x,\kappa) &\equiv P*(x)\kappa^\beta \end{aligned}$$

where $0 < \alpha, \beta < 1$, and attention must be restricted to to parameter values such that P stays within the interval [0,1]. Here $m^*(x)$ and $P*^(x)$ are, respectively, the fertility and survival probability of a "standard" individual of age x—one who consumes a single unit of resource.

To justify this particular formulation, I appeal to the data in figure 4. There, the vertical axis measures the variation of age-specific fertility across populations, and the horizontal axis measures mean age-specific fertility. The graph shows that fertility is most variable at age classes where fertility is high. At least some of this variation must reflect variation in consumption. Thus, it is sensible to build a model in which the effect of consumption is greatest on age classes with high fertility.[3]

Marginal fertility and survival become

$$m_\kappa = \frac{\alpha}{\kappa} m(x,\kappa) \tag{11}$$

$$P_\kappa = \frac{\beta}{\kappa} P(x,\kappa) \tag{12}$$

and the *MRS* in fitness is

$$MRS_F = \left(\frac{e^{\rho T}}{r}\right)\left(\frac{\gamma m^{(1)} + (1-\gamma)P^{(1)}v^{(1)}}{\gamma m^{(2)} + (1-\gamma)P^{(2)}v^{(2)}}\right)\left(\frac{\kappa^{(2)}}{\kappa^{(1)}}\right) \tag{13}$$

where $\gamma \equiv \alpha/(\alpha+\beta)$ measures the importance of marginal fertility relative to marginal survival.

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[3] I need to repeat this exercise with survival data.

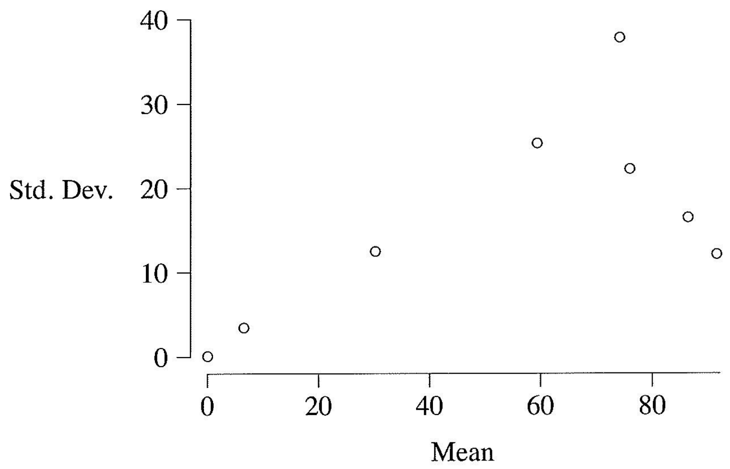

Figure 4: Mean and Standard Deviation of Age-specific Fertility
Based on the following sets of fertility data: 1906 Taiwan [11], Standard Natural Fertility [4], 1973 Libya and 19th century Utah [6].

3 Uncertainty about recipients

Thus far, I have assumed that the recipient is known with certainty at the time the investment is made. No allowance has yet been made for the possibility that the benefit may eventually go to someone other than the intended recipient. As in my previous paper on time preference, I will incorporate uncertainty by assuming that when the benefit arrives, it will be allocated among potential recipients (including the donor herself) so as to maximize its discounted value to the donor. As before, I rule out the possibility of distributing the benefit among several recipients. The development below differs from that of my previous paper in two ways. First, it allows the interaction to affect fertility as well as survival. Second, it will incorporate diminishing marginal returns to consumption.

3.1 Model

We begin as before, with table 1. The difference is that, under uncertainty it is not the row-sum itself that must equal zero, but the expected value of this sum. I assume changes in fertility and survival are caused by changes in consumption, as discussed above in section 2.2.2. In addition, I use the model of diminishing marginal returns defined above in section 2.3. Thus, equations 6–7 and 11–12 allow equation 5 to be re-expressed as

$$\begin{aligned} 0 = {} & \Delta\kappa^{(1)}(\alpha m^{(1)} + \beta P^{(1)} v^{(1)})/\kappa^{(1)} \\ & + \Delta\kappa^{(2)} e^{-\rho\tau} E\Big\{(\alpha m^{(2)} + \beta P^{(2)} v^{(2)})/\kappa^{(2)}\Big\} \end{aligned} \tag{14}$$

where E denotes the expectation. In taking this expectation, I define $v^{(2)} = 0$ when there is no recipient at all.

The MRS in fitness is obtained by rearranging this expression to obtain

$$\mathit{MRS}_F \equiv -\frac{\Delta\kappa^{(2)}}{\Delta\kappa^{(1)}} = E\{Z\}^{-1}$$

where

$$Z \equiv \left(\frac{e^{-\rho\tau} r(\gamma m^{(2)} + (1-\gamma)P^{(2)}v^{(2)})}{(\gamma m^{(1)} + (1-\gamma)P^{(1)}v^{(1)})}\right)\left(\frac{\kappa^{(1)}}{\kappa^{(2)}}\right), \tag{15}$$

and $\gamma \equiv \alpha/(\alpha+\beta)$ measures the relative importance of marginal fertility.

In what follows, I will take $\kappa^{(1)} = \kappa^{(2)}$ so that the final term in Z disappears. This restricts attention to the MRS at points along the 45° line in figure 1. In intergenerational transfers there is good reason for interest in these values. At stationary equilibrium, the consumption of an individual at age $x^{(1)}$ must equal that of her daughter one generation hence. Thus, intergenrational investments are governed by the MRS in preferences along the 45° line, which must also equal the MRS in exchange and the marginal productivity of intergenerational investment.[4] These quantities could all be predicted from the MRS in fitness along the 45° line. For transfers over shorter intervals, there is less reason for concern with the MRS along the 45° line. For these cases, the present approach will tell only part of the story.

3.1.1 The evolutionary discount function

To facilitate presentation of numerical results, I define an *evolutionary discount function* λ, which satisfies

$$\mathit{MRS}_F \equiv e^{\int_x^{x+\tau} \lambda(x,w)dw} \tag{16}$$

For example, when λ is a constant, future benefits are discounted exponentially at a constant rate. λ can accomodate nearly any form of discounting, and is closely related to the marginal rate of time preference (MRTP): the average value of λ over any age-interval predicts the MRTP over that interval [15, Eqn. 15]. I calculate λ from age-specific fertility and survival data using the methods described by Rogers [15].

3.1.2 Demographic statistics

Ideally, λ should be estimated using demographic statistics that reflect some sort of long-term average of human demographic history. This, of course, is impossible. I have instead relied on demographic statistics from modern "natural-fertility" populations, whose vital rates are thought to resemble those of pre-industrial populations.[5] It would be unwise, however, to take any single modern population as the examplar of our unknown ancestors. We do not know whether prehistoric human demography was more similar to that of 19th century Taiwan, or that of 19th century Utah, to name just two possibilities. Nonetheless, it seems likely that species-wide mean demographic parameters have for a very long time fallen within the range spanned by modern natural-fertility populations. In my previous paper, I estimated λ using demographic statistics from a wide variety of natural-fertility populations, and found that this variation had little effect on the answer. Consequently, I will restrict attention here to a single set of demographic statistics. I use fertility and paternity data of 19th century Utah [6] and the Model West life table with mortality level 12 [3, p. 47]. This mortality level implies that the expectation of life at birth e_0° is approximately 45 years.

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[4] See [13, p. 172] and [15, Footnote 12].

[5] A natural-fertility population is one in which birth-control is either absent, or else is applied independently of the number of a woman's existing children. In natural-fertility populations, women may use birth control to space births, but they do not use it to achieve a target family size [1].

3.2 Results

Before presenting new results, I summarize some old ones. Figure 5 shows an evolutionary discount function from my earlier paper on time preference. In the figure, "age at investment" refers to the age at which a decision is made between an immediate and a delayed benefit. Ages beyond the age at investment are "future ages." Thus, the line marked by open circles shows the discount function pertaining to some investment that might be undertaken by newborn infants, whereas the line marked by stars pertains to investments by young adults.

To understand what these curves mean, consider a hypothetical 20-year old woman who has been offered some survival benefit that will not arrive until she is 40. Since she is female and is now of age 20, the starred curve in the upper panel of figure 5 applies. It indicates that the average discount rates within the four 5-year intervals spanning ages 20–40 are 0.059, 0.050, 0.012, and 0.007 respectively. The average of these is 0.032, and this implies[6] that the future benefit should be discounted by a factor of $\exp[-20 \times 0.032] = 0.529$. The 20-year old, therefore, should value this delayed benefit at only about half of its nominal value. In general, one applies a MRTP that is an average of λ over the relevant interval.

The figure illustrates the major conclusions of the previous analysis:

- In the long run, λ converges to a value of about 2%, very close to the value predicted by the heuristic argument leading to equation 10. This lent support to my conclusion regarding the interest rate.
- The curves for different ages of investment lie nearly atop one another. Thus, λ is well approximated by a function of one argument: $\lambda(x, y) \approx \lambda^*(y)$.
- The evolutionary discount is much higher among young adults than among their elders. This predicts higher marginal rates of time preference among young adults, a prediction with which we can all identify.

However, figure 5 describes an analysis on survival axes rather than consumption axes. The evolutionary discount function there refers, in other words, to a trade-off between the survival (not the consumption) of donor and recipient. The methods introduced here allow an analysis on consumption axes, with varying levels of importance accorded to marginal fertility and marginal survival.

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[6] The average of λ predicts θ, the MRTP. This average is equal to $\theta = 0.032$, and equation 1 implies that the future benefit is discounted by a factor of $e^{-\theta\tau}$, where $\tau = 20$ is the time delay.

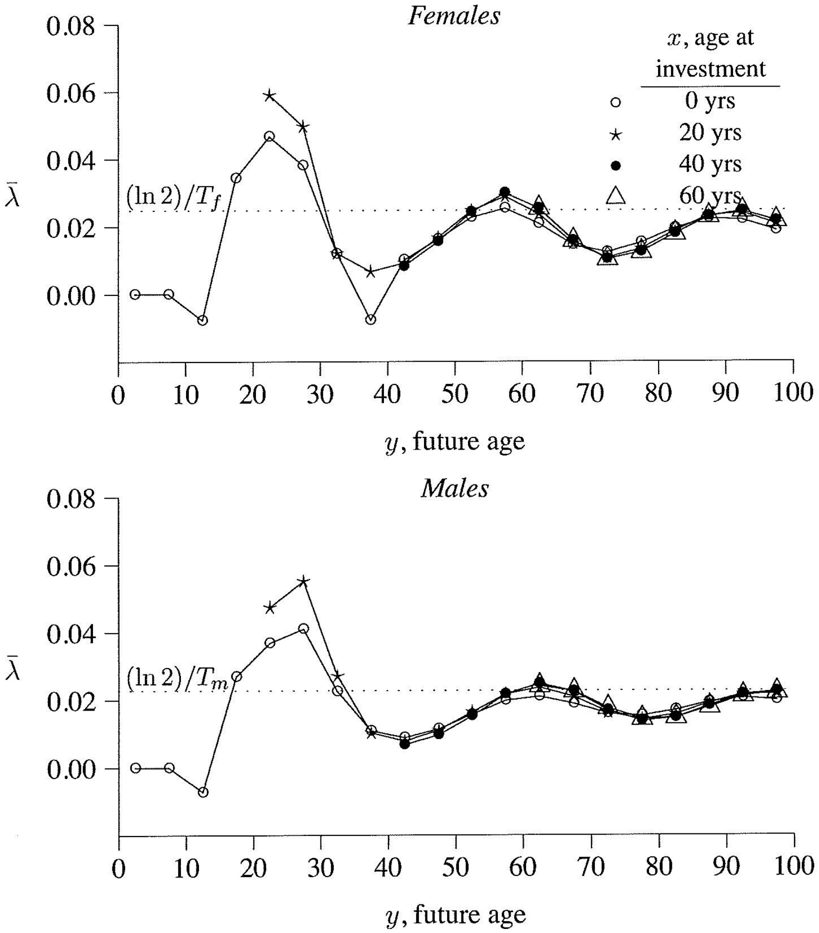


Figure 5: Evolutionary Discount Function

$\bar{\lambda}(x, y)$ is the average evolutionary discount rate within a five-year age interval. "Age at investment," x, refers to the age at which a decision is made between an immediate and a delayed benefit. "Future age," y, refers to ages beyond the age at investment. The dotted lines show the rate of interest predicted by equation 10, where the generation time is $T_f = 27.98$ for females and $T_m = 30.45$ for males.

Based on male and female fertility of 19th century Utah Mormons [6], and on the Model West life table (mortality level 12, $e_0^\circ = 47.5$ for females and 44.5 for males).

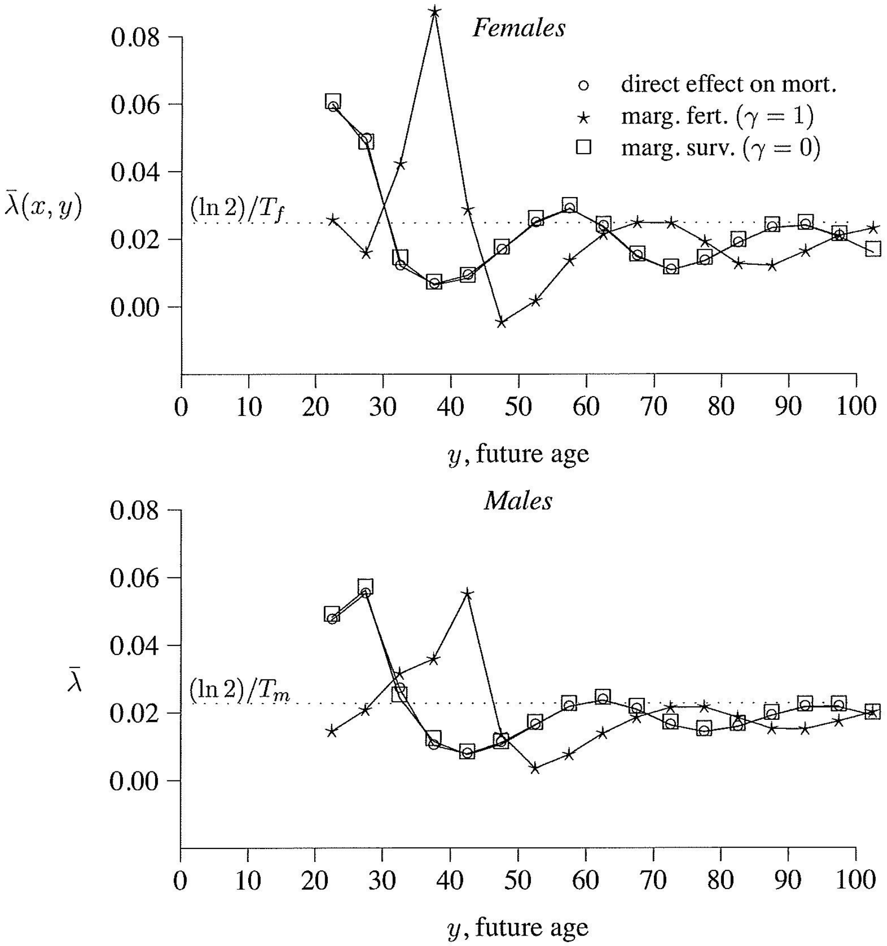


Figure 6: Evolutionary Discount Function

$\bar{\lambda}(x, y)$ is the average evolutionary discount rate within a five-year age interval. All curves refer to 20-year-old investors. "Future age," y, refers to ages beyond the age at investment. The dotted lines show the rate of interest predicted by equation 10, where the generation time is $T_f = 27.98$ for females and $T_m = 30.45$ for males.

Based on male and female fertility of 19th century Utah Mormons [6], and on the Model West life table (mortality level 12, $e_0^o = 47.5$ for females and 44.5 for males).

The result of this analysis is shown in figure 6, along with the age-20 curve from figure 5. It shows that

- The long-term tendency is toward a rate of roughly 2% in all cases. Thus, conclusions about the interest rate are unaffected by the difference between these models.
- When consumption affects survival (i.e. when $\gamma = 0$), the curve differs little from that of the earlier analysis.
- When consumption affects fertility, the discount function peaks in the late thirties and early forties.

I'm not sure what to make of this. Perhaps:

- young people are prone to risk their lives in return for immediate gratification (fast driving, sky diving, high crime rates), but middle aged people are more prone to take risks affecting fertility.

References

[1] Elizabeth A. Cashdan. Natural fertility, birth spacing, and the "first demographic transition". *American Anthropologist*, 87(3):650–653, Sept. 1985.

[2] Brian Charlesworth. *Evolution in Age-Structured Populations*. Cambridge University Press, Cambridge, England, 1980.

[3] Ansley J. Coale and Paul Demeny. *Regional Model Life Tables and Stable Populations*. Academic Press, New York, 2nd edition, 1983.

[4] Ansley J. Coale and T. J. Trussell. Model fertility schedules: Variations in the age structure of childbearing in human populations. *Population Index*, 40(2):185–258, April 1974.

[5] James F. Crow and Motoo Kimura. *An Introduction to Population Genetics Theory*. Harper and Row, New York, 1970.

[6] Mahjoub A. El-Faedy and Lee L. Bean. Differential paternity in Libya. *Journal of Biosocial Science*, 19(4):395–403, Oct. 1987.

[7] Caleb E. Finch. *Longevity, Senescence, and the Genome*. University of Chicago Press, Chicago, 1990.

[8] Ronald A. Fisher. *The Genetical Theory of Natural Selection*. Dover, New York, 2nd edition, 1958.

[9] William D. Hamilton. The genetical evolution of social behavior, I. *Journal of Theoretical Biology*, 7(1):1–16, July 1964.

[10] William D. Hamilton. The genetical evolution of social behavior, II. *Journal of Theoretical Biology*, 7(1):17–52, July 1964.

[11] William D. Hamilton. The moulding of senescence by natural selection. *Journal of Theoretical Biology*, 12(1):12–45, Sept. 1966.

[12] Ingemar Hansson and Charles Stuart. Malthusian selection of preferences. *American Economic Review*, 80:529–544, 1990.

[13] Jack Hirshleifer. *Investment, Interest, and Capital*. Prentice-Hall, Englewood Cliffs, NJ, 1970.

[14] Alan R. Rogers. Why menopause? *Evolutionary Ecology*, 7(4):406–420, July 1993.

[15] Alan R. Rogers. Evolution of time preference by natural selection. *The American Economic Review*, 84(3):460–481, June 1994.

insightspod

Brexit Statistics

Data Retrieved: 23rd June, 2016

Data Source: Twitter

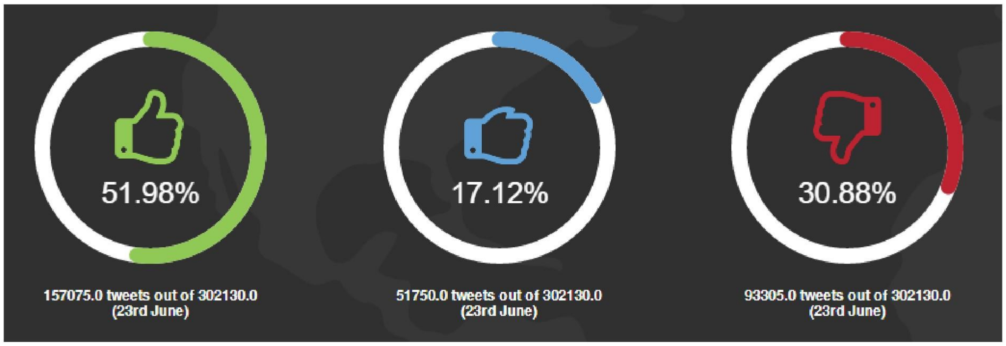
From: 12 AM CEST **TO:** 11 PM CEST

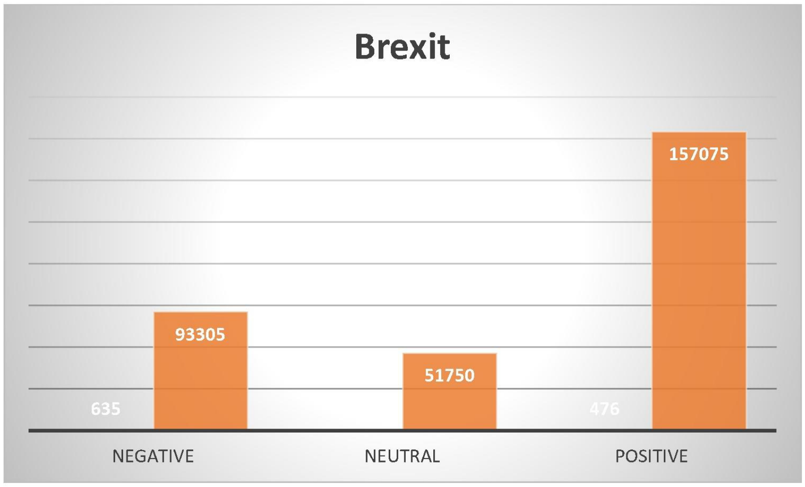
Total No of Tweets: 302,1130

No of Tweets with Positive Sentiment: 157,075

No of Tweets with Negative Sentiment: 93,305

No of Tweets with Neutral Sentiment: 51,750


51.98%
157075.0 tweets out of 302130.0
(23rd June)
17.12%
51750.0 tweets out of 302130.0
(23rd June)
30.88%
93305.0 tweets out of 302130.0
(23rd June)



user	Tweet	Created At	Location	No of times retweeted	Sentiment
DigestEcon	Markets in limbo ahead of Brexit vote https://t.co/UFjk6BiNVp #econ #mises #keynes	23 Jun 2016, 00:39 - CEST	In your Mind	0	negative
OriginBuilders	RT @DutchDL: TOMORROW>BREXIT pls !!> make history> & hopefully the Netherland will follow #PVV @EDLLONDON @Finnishdl @EDLâ€¦	23 Jun 2016, 00:39 - CEST	London	5	positive
cristiano_rosh	RT @manujosephsan: The finest Brexit was in 1947	23 Jun 2016, 00:39 - CEST	Mumbai ,India	164	positive
LeighJackson100	RT @Future_of_West: The Military "experts" who want Britain to remain in the EU were the same "experts" who wanted us to invade Iraq. #Brexâ€¦	23 Jun 2016, 00:39 - CEST		30	negative
BianchiGiuseMa	RT @Soppressatira: #Brexit: Â«Rischio enorme per famiglie e lavoroÂ». Dislocare in India e Cina le fabbriche, invece, Ã¨ estremamente sicuro.â€¦	23 Jun 2016, 00:39 - CEST	#storia #libri ItaliaMedievale	10	positive
TimesofIsrael	UK politicians make final appeals ahead of Brexit vote https://t.co/LLcWR1NIjh	23 Jun 2016, 00:39 - CEST	Jerusalem, Israel	0	positive
alijduncan	Bremain or Bereave? Vote smart Britons! #EUreferendum #Remain #UKreferendum #Brexit	23 Jun 2016, 00:39 - CEST	Wellington, New Zealand	0	negative
Jan_S_B_459	RT @Trev_Forrester: VOTE LEAVE #Brexit https://t.co/ldikPiOkyc	23 Jun 2016, 00:39 - CEST	Engand	14	positive
100postolala	@OtkudJa Å¡ta je se Å¡a? #BREXIT bre, od danas ne govorim viÅ¡e engleski	23 Jun 2016, 00:39 - CEST	Zrenjanin / Veliki BeÄ•kerek	0	negative
ianross6	RT @Dwalingen: I'm Dutch and I endorse #Brexit because we can be united only in freedom, sovereignty and rule of law. #VoteLeave https://tâ€¦	23 Jun 2016, 00:39 - CEST		257	positive
failedevolution	Î¤Î¿ Brexit Î¸Î± Î®Ï„Î±Î½ ÎÎ½Î± Î±Ï€Î¿Ï†Î±ÏƒÎ¹ÏƒÏ„Î¹ÎºÏŒ Ï‡Ï„Ï•Ï€Î·Î¼Î± ÎµÎ½Î¬Î½Ï„Î¹Î± ÏƒÏ„Î· Î½ÎÎ± Î¦ÎµÎ¿Ï…Î´Î±Ï⍰Ï‡Î¯Î± https://t.co/MKxxj5gwWq	23 Jun 2016, 00:39 - CEST		0	neutral
JchilbeT	RT @evelinafinance: GBP/USD remains near 5month high ahead of Brexit referendum: https://t.co/WuufO9JBuH	23 Jun 2016, 00:39 - CEST	Argentina	1	negative
kiq	RT @stereogum: Noel Gallagher steps into Brexit debate: "I like the fact that it sounds like a cereal" https://t.co/D6xD37cxWH https://t.coâ€¦	23 Jun 2016, 00:39 - CEST	City of Osaka	9	positive
LivingInHopeUK	RT @AMTrump4PRES: I'd like 2 dedicate this tweet 2 former lovely cultures that will only B found between the pages of a book. #Brexit httpsâ€¦	23 Jun 2016, 00:39 - CEST	United Kingdom	11	positive
fnyack	Terrorists for deportation June 234, 2016. BREXIT! https://t.co/jtHoi0A0xK	23 Jun 2016, 00:39 - CEST	Manhattan, NY	0	negative
itsmelukepenny	#Brexit https://t.co/qtJKmlBWQh	23 Jun 2016, 00:39 - CEST	Earth (tax purposes)	0	negative

juanvendedor	Race of the Day: Brexit https://t.co/kn1m6nTroa https://t.co/E9Ht8Vnh9h	23 Jun 2016, 00:39 - CEST		0	positive
gdechanterac	RT @MVAlekseiev: Le taux de participation record de la prÃ©sidentielle autrichienne (107%) devrait Ãªtre battu lors du rÃ©fÃ©rendum sur le #Breâ€¦	23 Jun 2016, 00:39 - CEST	Paris / VendÃ©e	4	negative
callemexico	â€œBrexitâ€• causarÃa impacto en exportaciones italianas por 1.9 mil mdd https://t.co/ko8BcaDF8l	23 Jun 2016, 00:39 - CEST		0	negative
traderpreneurs	Cramer: Brexit fears are overblown https://t.co/BTRlqQuAIb	23 Jun 2016, 00:39 - CEST	Solo-Indonesia	0	negative
elliemurphie	A question I really think was not given due consideration over the #Brexit campaign #VoteRemain â•¤ https://t.co/oLFttmB5xu	23 Jun 2016, 01:13 - CEST	Ireland	0	negative
olgauq	RT @el_pais: La PolicÃa de Londres impide un reparto de cruasanes para pedir el voto contra el 'Brexit' https://t.co/UbMQsEnHpL	23 Jun 2016, 01:13 - CEST		20	NA
JohnMGinty	@JChatterleyCNBC #Brexit? I say remain. And I'm a blarneylovin Mic! Quell the uncertainty! What thinks Julia?	23 Jun 2016, 01:13 - CEST	West Chester, PA	0	negative
robertopliegor	Mezcla sin temor a Brexit sube a 40.83 dÃ³lares https://t.co/2BpHqmvpnp	23 Jun 2016, 01:13 - CEST	mexico city	0	NA
7nestingwrens	RT @londonfredd: People who vote #Brexit on the bases of immigration are likely to be voting on a lie risking their own jobs, pensions andâ€¦	23 Jun 2016, 01:13 - CEST	English Borders	1	NA
RamEstate	RT @NewsLandlords: UK landlords are not concerned over Brexit https://t.co/KEzIRG7qsg #uklandlords #Brexit https://t.co/pFhLeLtBHr	23 Jun 2016, 01:13 - CEST	London & Essex	6	NA
MarkNewtonCMT	RT @Histreepix: Applicants for 'Official Mascot of Brexit', Chelmsford, 2016. The eventual winner was Boris Johnson. https://t.co/xNSyH6HIaW	23 Jun 2016, 01:13 - CEST	Fairfield, CT	24	NA
RodYork	Final Brexit Appeals Made as Polls Diverge on Referendumâ€™s Eve https://t.co/cBcgvj4wmD via @business	23 Jun 2016, 01:13 - CEST		0	NA
maxim_bombo	#BrexitOrNot : Â«Â Les Britanniques ont toujours eu l'impression d'Ãªtre rejetÃ©sÂ Â» https://t.co/iMvuvDiBYb	23 Jun 2016, 01:13 - CEST		0	NA
RussiaConnects	#BREXIT https://t.co/Om5ZfPLK8s	23 Jun 2016, 01:13 - CEST		1	NA
SFSU	Voters in the UK will decide on #Brexit tomorrow. An #SFSU expert explains what's at stake: https://t.co/7U3EiNAHkd https://t.co/fEzAz6vQxl	23 Jun 2016, 01:13 - CEST	San Francisco, CA	2	NA
KateHesk	Lying in bed and my heart rate is 78bpm all because of Brexit. Actually feel sick at the prospect #Fitbit #voteremain	23 Jun 2016, 01:13 - CEST	Merseyside, UK	0	negative
AnonCentroAmeri	RT @Wrath_01: Lies told to Norway before they rejected EU membership #Brexit #Voteleave https://t.co/2Vo1OXHDuq via @YouTube	23 Jun 2016, 01:13 - CEST		1	positive
theflyingmedic	@Scouriebeast @COLRICHARDKEMP @JodieActy I am suggesting the EU stops and it will. Then we can work with our free European partners. #Brexit	23 Jun 2016, 01:13 - CEST		0	NA

stephenmcmanus8	RT @RuthLeaEcon: Of course there'd be an EU trade deal if #Brexit. German BDI (CBI) head clear tariffs would damage German jobs. https://t.â€¦	23 Jun 2016, 01:13 - CEST		195	NA
PazUtzin	RT @thejohnhastings: If anyone is wondering if you do not attend my @edfringe show you are helping the part of Brexit you oppose	23 Jun 2016, 01:13 - CEST		2	NA
iLibTw	En anterior debate con Farage, Cameron hablÃ³ de la â€œCosta del Crimeâ€•[Sol]. Si hay algo bueno del #Brexit serÃa expulsar a mafia UK de ESP.	23 Jun 2016, 01:13 - CEST	EspaÃ±a (BCN is not CAT)	0	NA
neptunoopina	RT @LaVanguardia: Â¿QuÃ© opinarÃa Winston Churchill sobre el Brexit? https://t.co/GOBL0hjW7e https://t.co/5LQ62PGDhY	23 Jun 2016, 01:13 - CEST		7	NA
GCPa18th	#Brexit vote here we come.... Will I stay or will I go?	23 Jun 2016, 01:13 - CEST	SW PA	0	NA
EarthBabyYMagoa	RT @Mark_Beech: A propos @garbage and #Brexit posts tonight, heavy British rain might affect turnout? https://t.co/w4TFDekFXL	23 Jun 2016, 01:13 - CEST	Alaska	396	NA
vijayhre86	The theme today is all about disruptions.. Nothing could be more disruptive than Brexit atm!	23 Jun 2016, 01:46 - CEST		0	NA
MariaEsquirozMa	RT @muyinteresante: Â¿QuÃ© es el "Brexit"? Â¿QuÃ© consecuencias tendrÃa? Te lo contamos todo aquÃ: #Brexit https://t.co/R8L7edqRdk https://t.coâ€¦	23 Jun 2016, 01:46 - CEST		45	NA
mortalfool	BrexitNO. TexitYES!	23 Jun 2016, 01:46 - CEST	Brooklyn, NY	0	NA
cihat_metin	RT @eagencye: #Brexit Soros and CIA !	23 Jun 2016, 01:46 - CEST	#ATE #ANTÄ°FA #ACAB	1	NA
aihyah	Britain Doesn't Need the EU to Trade Rocking MrE #Brexit #VoteLeave #BBCdebate #EUreferendum https://t.co/zDcCYRdVP3	23 Jun 2016, 01:46 - CEST	Junckers Bottom	0	positive
Engesee	#ID23 #IndependenceDay #Brexit VOTE LEAVE	23 Jun 2016, 01:46 - CEST		0	positive
HarryBarwell6	If that vote is tomorrow I'm voting out coz 1 Funny 2 3 Bare heads crying about how were gonna die if we brexit	23 Jun 2016, 01:46 - CEST		0	NA
Eng_Observer	RT @jeremyforlabour: "The EU is not a benign or civilising force. It is a facilitator and enforcer of lending cartels" https://t.co/JWmFNEvâ€¦	23 Jun 2016, 01:46 - CEST	Lincolnshire	4	NA
topnuntious	Concerns over Brexit do not end at the English Channel https://t.co/MBd5abLyli https://t.co/K0XnAF3R39 via FT	23 Jun 2016, 01:46 - CEST		0	NA
skipsiperko	RT @ElVatoTeporocho: "Welcome to London, are you ready to convert or die?" #VoteLeave #Brexit https://t.co/7hsV0YKpNI	23 Jun 2016, 01:46 - CEST		12	positive

jenmili	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 01:46 - CEST	â⍰¤â˜º PERÃš â˜ºâ•¤	2444	positive
MarkHollohead	Liz Huirley bares all to back Brexit https://t.co/QATyDOymiR @MailOnline.well done Liz.you are a true Brit.believe in Britain.#VOTELEAVE	23 Jun 2016, 01:46 - CEST	Liverpool, England	0	positive
GreenSamPAFC	RT @arjan____: the ones that stand to benefit from Brexit are unsavoury. Racism, nationalism and fascism benefit from Brexit	23 Jun 2016, 01:46 - CEST	Plymouth	5	NA
Toronto_nian	#Brexit . . . big deal! Planet earth will keep turning #Cartoon for laughs via @Toronto_nian Toronto's own! https://t.co/uITSzvJxp9	23 Jun 2016, 01:46 - CEST	Toronto The Good!	0	NA
belkgarri	RT @CNBC: UK Brexit campaign's lead narrows ahead of referendum: TNS poll https://t.co/w7WRb2R0lF	23 Jun 2016, 01:46 - CEST		5	NA
JJDoomydas	RT @Mark_Beech: A propos @garbage and #Brexit posts tonight, heavy British rain might affect turnout? https://t.co/w4TFDekFXL	23 Jun 2016, 01:46 - CEST	Maine	767	NA
stevegb0071	UK WAR VETERANS SLAM PLANS FOR EMERGING EU ARMY AHEAD OF BREXIT VOTE https://t.co/Tv8DNzprXY via @YouTube	23 Jun 2016, 01:46 - CEST	U.K	0	NA
DarioAtencioA	@guardian has presented a summing up of its point of view about #Brexit vote tomorrow's. "Vote to Remain" and Why? https://t.co/GdXNtVYLFp	23 Jun 2016, 01:46 - CEST	Manhattan, NY and Panama.	0	negative
SamBaker	RT @jpublik: That #Brexit manifesto in Private Eye #VoteRemain #EUref https://t.co/QU1fjwvk6G	23 Jun 2016, 01:46 - CEST		2295	negative
MitulRach1	Today is the Day, Who is everyone going to vote for?? BREXIT or REMAIN?? Who will you vote for??	23 Jun 2016, 01:46 - CEST		0	negative
TheCutbanks	Thanks CBC 'It's a dead heat': What you want to know about the Brexit vote https://t.co/SMVZETx8fQ #Brexit	23 Jun 2016, 02:20 - CEST	Prince George, BC	0	negative
Lesism	RT @ethicistforhire: Can't believe it's called Brexit, and not EUthanasia...	23 Jun 2016, 02:20 - CEST	Carlisle, England	39	negative
Candyo4u249	RT @AMTrump4PRES: I'd like 2 dedicate this tweet 2 former lovely cultures that will only B found between the pages of a book. #Brexit httpsâ€¦	23 Jun 2016, 02:20 - CEST	Connecticut, USA	180	positive
marketstocknews	New post: "Traders: Here's where to find some protection for your portfolio ahead of Brexit" https://t.co/kDAMhZGaJv	23 Jun 2016, 02:20 - CEST		0	positive
marketstocknews	New post: "How are you positioned ahead of the Brexit referendum?" https://t.co/5tzxHffYEX	23 Jun 2016, 02:20 - CEST		0	positive
moshtag2030	RT @alexbland: #Brexit #IndependenceDay https://t.co/v9TrmBwSZg	23 Jun 2016, 02:20 - CEST		7	neutral
Charlie_Ledezma	RT @PeterLBrandt: #FACTORMEMBERS Going home tonight prior to #BREXIT with lightest leverage in 18 mos. at 5% margin to equity and no financâ€¦	23 Jun 2016, 02:20 - CEST	Panama	9	negative
marketstocknews	New post: "Cramer: Brexit fears are totally overblown" https://t.co/4ZqkAMAb5N	23 Jun 2016, 02:20 - CEST		0	negative

clairebotai	RT @Spock_Capt: In the Science of Civilizations, Brexit Is the European Unionâ€™s Reckoning https://t.co/HxTKQiV2cw #geek #tech	23 Jun 2016, 02:20 - CEST		1	neutral
PapaSonsFilm	If this storm isn't telling you that Brexit is doomed then... well, we are doomed.	23 Jun 2016, 02:20 - CEST	London	0	negative
Spock_Capt	In the Science of Civilizations, Brexit Is the European Unionâ€™s Reckoning https://t.co/HxTKQiV2cw #geek #tech	23 Jun 2016, 02:20 - CEST	Paris	1	neutral
jacobward_11	RT @mikeudem: #Stocks close lower as #WallStreet #countsdown to #Brexit #vote https://t.co/p795Av9GXK https://t.co/OFevR32dxd	23 Jun 2016, 02:20 - CEST	Stamford, CT	1	negative
ekatloy	RT @mz_understuud: @PrisonPlanet saw some saying if you're undecided on #Brexit then vote Remain coz you guys can always have another vote.â€¦	23 Jun 2016, 02:20 - CEST		1	negative
VaseCommunicant	RT @theintercept: If British voters choose to leave the EU this week, it will push the continent back toward nationalism. https://t.co/48Gqâ€¦	23 Jun 2016, 02:20 - CEST		69	positive
federalnews24	Fed's Yellen says no special meetings scheduled over Brexit #Yellen #Brexit... https://t.co/N718bknyod	23 Jun 2016, 02:20 - CEST		0	negative
PropertyFundsAU	Hear what @YieldReport has to say about the Brexit referendum check out the link https://t.co/XVX0W0sgAT	23 Jun 2016, 02:20 - CEST	500, Collin St, Melbourne, VIC	0	positive
duchessofvisser	tomorrow is the day when they decide if they #brexit	23 Jun 2016, 02:20 - CEST	Bahamas	0	neutral
hw_renewe	RT @DerorCurrency: In two brief, perspicacious paragraphs, @ProfSteveKeen nails the reason to #Brexit. https://t.co/4gjfvD0FhH https://t.câ€¦	23 Jun 2016, 02:20 - CEST		64	neutral
3tyl	Brexit Brexit Brexit, ich hÃ¶r immer nur #Brexit. Mir doch egal in welche LÃ¤nder die EUGelder flieÃŸen. #VoteLeave	23 Jun 2016, 02:20 - CEST	Germany	0	positive
marketstocknews	New post: "Markets caught in limbo ahead of Brexit vote" https://t.co/g6GtnCnfhe	23 Jun 2016, 02:20 - CEST		0	negative
DS_Investools	Be sure to check out tonight's Market Forecast by Blake Young our resident #forex expert @Investools #Brexit https://t.co/uAWkjehF1I	23 Jun 2016, 02:37 - CEST	USA	0	positive
wmiddelkoop	RT @adamjlent: Good chart from Morgan Stanley showing surge of populist parties in Europe. #Brexit will boost them further. #EUref https://â€¦	23 Jun 2016, 02:37 - CEST	markets - geopolitics-energy	18	positive
Hope_for_Sanity	RT @FactDeJour: We'll either be Eurotrash or lonely Brits 2moro & the fun bit is, nobody has a single solitary clue which is lesser evil #Bâ€¦	23 Jun 2016, 02:37 - CEST	Knoxville,TN to Leeds,England	2	negative
Dmol8	RT @CharlesPHoffman: Okay, rant over. Return to your regularly scheduled freakout about the Brexit referendum.	23 Jun 2016, 02:37 - CEST		1	neutral

katestewart_	RT @louteasdale: Watch @billiejdporter tonight on Newsnight talking about #brexit #voteremain channel 4 at 9pm X	23 Jun 2016, 02:37 - CEST	Instagram~ katestewart_	235	negative
yudhaueeo	Inggris Gelar Referendum 'Brexit' Hari Ini: Diperkirakan 46,5 juta orang berhak ambil bagian dalam... https://t.co/Ds7Dhxos29	23 Jun 2016, 02:37 - CEST	San Francisco	0	neutral
sparkyofAlberta	RT @CBCNews: 'It's a dead heat': What you want to know about the Brexit vote https://t.co/ZV51GeqdLF https://t.co/N2lpbv2ddd	23 Jun 2016, 02:37 - CEST	Swift Current, Saskatchewan	14	negative
Love_Catford	I know everyone is joking about the Brexit thunderstorm but has anyone looked outside recently....	23 Jun 2016, 02:37 - CEST	Catford, SE6	0	neutral
Stormkat454	RT @sturdyAlex: Selina Scott's case for #Brexit after Sheila Hancock's case for #Remain is like eating the best steak and then eating the pâ€¦	23 Jun 2016, 02:37 - CEST		101	negative
SandraZuccaro1	A slush fund paying off countries to try and stop a tidal wave Merkel. We're be calling you Canute https://t.co/CrRHEj4PAp #Leave #Brexit	23 Jun 2016, 02:37 - CEST		0	positive
INVUQT	RT @TheRebelTV: Is #Europe dying? Is 'Identitarian' movement the cure? @Lauren_Southern https://t.co/OKMKl0sqJs #tcot #Brexit https://t.co/â€¦	23 Jun 2016, 02:37 - CEST	Canada	25	negative
mjcooper101	RT @jpublik: That #Brexit manifesto in Private Eye #VoteRemain #EUref https://t.co/QU1fjwvk6G	23 Jun 2016, 02:37 - CEST	England	2323	negative
Greg_5mith	RT @Stop_The_EU: Freedom to remove all EU fishing quotas, revoke the CFP & rebuild Britain's once thriving fishing industry #Brexit https:â€¦	23 Jun 2016, 02:37 - CEST		177	positive
Hammers1010Alex	RT @LeaveEUOfficial: .@ElizabethHurley is voting LEAVE tomorrow are you? #Brexit #VoteLeave #EUref https://t.co/va71MYUtMK	23 Jun 2016, 02:37 - CEST	âš' fantastic Harlow âš'	380	positive
Spent_Brass	â™ #LetsGo! @BREXIT: #IndependenceDay for @Britain? https://t.co/DiDC3KCwd6 via @YouTube	23 Jun 2016, 02:37 - CEST	United States, Wisconsin	0	positive
moneyspinner	RT @Nin_Matharu: UK EU Referendum 2016 Why I'm Voting #Brexit https://t.co/slsTw2Z3Pc	23 Jun 2016, 02:37 - CEST	BIRMINGHAM, UK	2	neutral
piedmontian11	RT @XxPLWxX: PLEASE RT!! Juncker confirms there'll be NO reform if we stay in the EU https://t.co/yqokYbJQGH We absolutely MUST #Brexit #Voâ€¦	23 Jun 2016, 02:37 - CEST	Athens, TX	168	positive
Henayti	RT @liputan6dotcom: Inggris Gelar Referendum 'Brexit' Hari Ini https://t.co/HcD3S8AVlT https://t.co/GeQ9tsrU6D	23 Jun 2016, 02:37 - CEST	Tangerang, Indonesia	1	NA

xyzcompanyinc	Why the United Kingdom leaving the EU would infuriate the tech industry https://t.co/svoAGsFlXP	23 Jun 2016, 02:37 - CEST		0	negative
dkenstone	RT @roomdesign3: TRAITORS TO THE UNITED KINGDOM/ALL FUTURE GENERATIONS/REJECT GRAB YOUR FREEDOM #BREXIT SPREAD THE WORD @FeistyDeanne httpsâ€¦	23 Jun 2016, 02:37 - CEST	Nantong City, Jiangsu, China	16	negative
juneimmelman	RT @IngrahamAngle: Bono, Beckham & every other global celeb in Britain ag #Brexit. Follow the $> globalization great for them, horrid forâ€¦	23 Jun 2016, 02:54 - CEST	Orlando, FL	242	negative
gas_bill	Final #Brexit Appeals Made as Polls Diverge on Referendumâ€™s Eve https://t.co/qjTf8JRl3E	23 Jun 2016, 02:54 - CEST	Dallas/Ft. Worth â€¢ New York	0	neutral
dieterzakel	I back BREXIT, and please don't forget to hang Juncker https://t.co/I6KCR2yMmZ	23 Jun 2016, 02:54 - CEST	Port Moresby	0	negative
JasonDeFuria	In the Science of Civilizations, Brexit Is the European Unionâ€™s Reckoning https://t.co/xZlZO6Izgn	23 Jun 2016, 02:54 - CEST	Cherry Hill, NJ	0	neutral
pazgabela	Brexit: ReferÃ©ndum entre la derecha neoliberal y la derecha neofascista. Â¿Y la izquierda? https://t.co/p6drfvsqks	23 Jun 2016, 02:54 - CEST	Asturias	0	negative
KolbSchmitt	RT @ElyseeMarine: Choisissez la libertÃ© et non la soumission UE ! #Brexit #Leave https://t.co/na5pS5FnR0	23 Jun 2016, 02:54 - CEST		33	positive
abcnews	RT @naomiwoodley: .@TurnbullMalcolm: "It would be a very big shock, no doubt about it, if Britain votes to leave the EU. @abcnews #brexit #â€¦	23 Jun 2016, 02:54 - CEST	Australia	3	positive
ABCElections	RT @naomiwoodley: .@TurnbullMalcolm: "It would be a very big shock, no doubt about it, if Britain votes to leave the EU. @abcnews #brexit #â€¦	23 Jun 2016, 02:54 - CEST	Australia	3	positive
parishatzi	STEPHEN GLOVER: Why I'm voting Brexit because it could RESCUE the EU, not destroy itÂ https://t.co/LKfTjPLvrO	23 Jun 2016, 02:54 - CEST	Athens - Nicosia	0	neutral
Genetlv	In the Science of Civilizations, Brexit Is the European Unionâ€™s Reckoning https://t.co/stcLZ3a76t via @WIRED	23 Jun 2016, 02:54 - CEST		0	neutral
chntypdwrm	Inggris Gelar Referendum 'Brexit' Hari Ini: Diperkirakan 46,5 juta orang berhak ambil bagian dalam... https://t.co/LL589ypLrd	23 Jun 2016, 02:54 - CEST	ÃœT: -6.543387,107.442888	0	neutral
AbdirahmanAliUK	RT @Independent: Final EU referendum poll shows Remain with significant lead https://t.co/v72FEEz7Pd	23 Jun 2016, 02:54 - CEST		300	negative
ez_jokka	RT @elizabethholds: Is this crazy storm in London some kind of sign of impending doom? #Brexit #Trump #Apocalypse	23 Jun 2016, 02:54 - CEST	London	1	negative
Yoostin	What's more likely. UK Parliament voting to remove employment rights. Or EU amending regulation, so forcing UK to remove rights? #brexit	23 Jun 2016, 02:54 - CEST	Llanelli, Wales, UK	0	negative

znk8	RT @laprensaoem: La decisiÃ³n de #DavidBeckham sobre el #Brexit #UnionEuropea #ReinoUnido #ENG https://t.co/RTDms6023e	23 Jun 2016, 02:54 - CEST	Mexico D.F.	1	neutral
villain2007	RT @LouiseMensch: German CBI: no tariffs after we #voteleave. Die Welt newspaper endorses Leave for the UK. VorsprÃ¼ng durch #Brexit https:/â€¦	23 Jun 2016, 02:54 - CEST	eastern block.	903	positive
aarianto10	Inggris Gelar Referendum 'Brexit' Hari Ini: Diperkirakan 46,5 juta orang berhak ambil bagian dalam... https://t.co/jUYlkqetVM	23 Jun 2016, 02:54 - CEST	World	0	neutral
TegenH	RT @zoowitchproject: Gods angry at potential #brexit, make feelings known with violent #thunder storm in London! Appease gods, vote #remain	23 Jun 2016, 02:54 - CEST		4	negative
KellerZoe	Something Strange Emerges When Looking Behind The "Brexit" Bookie Odds | Zero Hedge https://t.co/pD41DK0V4E	23 Jun 2016, 02:54 - CEST		0	neutral
francreynel	RT @inthemoodfortw: Ouinon, graffiti sur la route, Paris, 1945 Â© Paul Almasy #Brexit https://t.co/9VfVJzOdDE	23 Jun 2016, 02:54 - CEST	Paris	18	neutral
txblondegrad	RT @Forbes: Poll: 80% of Americans think Britain should leave the EU https://t.co/EPNk488c9h https://t.co/3mqaV8v5KD	23 Jun 2016, 02:55 - CEST	32.786456,-96.97525	280	positive
AyakTracks	That's that 'stop your stupidness bout brexit' Thunder & Lightning #VoteProper #GodsTakingSelfies	23 Jun 2016, 02:55 - CEST		0	neutral
buttonhole1	RT @LeaveEUOfficial: #VoteLeave tomorrow for our independence! #EUref #Brexit https://t.co/upHsaXVzV4	23 Jun 2016, 02:55 - CEST		357	positive
KenHaley2	In event of #Brexit UK is holding all cards & EU powerless.THE EU CANNOT START TRADE WAR.THE EU CANNOT PUNISH UK https://t.co/FOMFOkySx3	23 Jun 2016, 02:55 - CEST		0	neutral
cactuscrusader	RT @marios_bn: ÎšÎ±Ï„Î¬Î»Î±Î²ÎµÏ, Ï„ÏŽÏ•Î± Î•Î»Î»Î·Î½Î¬Ï•Î± Î¼Î¿Ï… Ï„Î¹ Î´Î¿Ï•Î»ÎµÎ¼Î± ÎÏ†Î±Î³ÎµÏ, ÎºÎ±Î¹ Ï€Î¿Ï• ÏƒÎµ Ï€Î®Î³Î±Î¹Î½Î±Î½; #bremain #brexit #grexit #ÎŸÎ§Î™2015 https://t.co/3ASzNZsucC	23 Jun 2016, 02:55 - CEST	greece Athens	190	negative
accordingtopun	if they brexit we will be forced to lift more to pick up the slack!! #USAmerica @nyhrc	23 Jun 2016, 02:55 - CEST		0	negative
Avalon262	RT @Mrforestmoon: To our uk friends across the pond #Brexit and take your country back	23 Jun 2016, 02:55 - CEST	Hastings	1	positive
MiketheSpike	RT @seedy181: Voting to remain is effectively treason #Brexit #Voteleave https://t.co/K5KrMxmvZG	23 Jun 2016, 02:55 - CEST	USA	9	positive
AdvisorboxMedia	RT @business: This stock trader who made 6,200% in China isn't worried about Brexit https://t.co/kATgnhWtt2 https://t.co/AUDj7wjkfa	23 Jun 2016, 02:55 - CEST	Breckenridge,CO	15	neutral
Sgt_Rock68	#VoteLeave #Brexit https://t.co/nnyCRNB5ew	23 Jun 2016, 02:55 - CEST	50.9692224Â° N 0.08939510Â° E	0	positive

ricardofigueira	RT @AndrewBloch: PR Stunt of the Day Tattoo Shop offers free Brexit tattoos to highlight the permanence of voting leave https://t.co/pcjdâ€¦	23 Jun 2016, 02:55 - CEST	London, UK	53	positive
DepthOfTwilight	RT @CaucasianAllure: The darkness is taking over the light. The migrants are taking over Europe. #Brexit #VoteLeave #StandUpForEurope hâ€¦	23 Jun 2016, 02:55 - CEST	Far Far Away	14	positive
CLIENTEIGHT	........how many faceberg likes does #Brexit have	23 Jun 2016, 02:55 - CEST	southern california	0	neutral
zesty_finance	Australia shares to get opening lift from Brexit polls https://t.co/Kvk1FlvIkC #Finance https://t.co/jWJCMRXRSx	23 Jun 2016, 02:55 - CEST	New York, NY	0	neutral
BLang71	RT @V_of_Europe: Your country needs YOU: Vote Leave today to make Britain even greater https://t.co/NXFjXxIrtI	23 Jun 2016, 02:55 - CEST	United States	24	positive
AIMHIGH1	RT @Inst_4_Studies: This guy will be voting Remain. A charlatan voting for charlatans. Unacceptable. #Brexit https://t.co/1m5IDGxAuB	23 Jun 2016, 02:55 - CEST	sarf london	12	negative
NewsdeskMONEY	RT @NewsdeskBIZ: Vote remain and weÂ´ll forgive you for 1966! German newspaper wade into Brexit debate Soccerway https://t.co/lUuoiGrpIh	23 Jun 2016, 02:55 - CEST		1	negative
adventurewmike	RT @afpfr: #Brexit: suspense total et derniÃ¨res mises en garde Ã quelques heures du rÃ©fÃ©rendum https://t.co/YTf2M0q0ml #AFP https://t.co/yâ€¦	23 Jun 2016, 02:55 - CEST	Kansas	18	negative
tulio1987	#fb Wednesday, June 22nd, 2016 Brexit: Remain, House Sit In, Illegal Bingo, Matchâ€¦ https://t.co/aIs5hhOeD8	23 Jun 2016, 02:55 - CEST	GUÃ•RICO VENEZUELA.	0	negative
josiefey	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 02:55 - CEST	Portland, OR	4061	positive
2happy2man	RT @Vixen_chick: Let today be Britain's Independence Day, Vote #Brexit Better Great Britain rather than the 28th State of Europe https://t.â€¦	23 Jun 2016, 02:55 - CEST		2	positive
SanDisH	Sleepless in the City Lets Traders Bet Billions on Brexit Result Bloomberg https://t.co/VttnqoDrj8	23 Jun 2016, 02:55 - CEST	Venus	0	negative
ArchivePerform	RT @refugee_archive: Very pleased to have a stimulating day @UEL_Library Ends w/ great roundtable #Brexit #DifferentPastsSharedFutures htâ€¦	23 Jun 2016, 02:55 - CEST	London, England	2	positive
Angelisse007	RT @bare_digital: In the Science of Civilizations, Brexit Is the European Unionâ€™s Reckoning https://t.co/SLrDA1GwOy #tech #wired https://t.â€¦	23 Jun 2016, 02:55 - CEST	Tampa, FL	7	neutral
NaeemSiddiqui84	RT @V_of_Europe: Farageâ€™s final rallying call: â€˜Itâ€™s us versus the Establishment go and vote for Britain' https://t.co/LfRgbPr9PF	23 Jun 2016, 02:55 - CEST		19	neutral
LynannMarie56	RT @theghissilent: I just want to know how the #Brexit will impact getting Doctor Who back on @netflix...	23 Jun 2016, 02:55 - CEST	Bay Area, CA	3	negative

NaeemSiddiqui84	RT @V_of_Europe: Your country needs YOU: Vote Leave today to make Britain even greater https://t.co/NXFjXxIrtI	23 Jun 2016, 02:55 - CEST		24	positive
ravicyp	RT @ajay_mahil: This is God warning you about a brexit	23 Jun 2016, 02:55 - CEST		2	negative
helen_f_b	Lotta people on Twitter reckon the storm is God supporting Brexit, or alternately God supporting remain.	23 Jun 2016, 02:55 - CEST	London	0	negative
chass2008	RT @AMTrump4PRES: I'd like 2 dedicate this tweet 2 former lovely cultures that will only B found between the pages of a book. #Brexit httpsâ€¦	23 Jun 2016, 02:55 - CEST		227	positive
r_fh_v	RT @danielayllon: Ojo a las portadas de la prensa britÃ¡nica de maÃ±ana. Esto es posicionarse y no lo de EspaÃ±a. #Brexit #BrexitOrNot https:/â€¦	23 Jun 2016, 02:55 - CEST	(Ahora) Madrid	76	positive
BorderKeroro	RT @V_of_Europe: Your country needs YOU: Vote Leave today to make Britain even greater https://t.co/NXFjXxIrtI	23 Jun 2016, 02:55 - CEST		24	positive
AllahuOmar	@CharleyyRachael I'd tell her to vote for Trump. But she's a useless brit. So she can vote for Brexit.	23 Jun 2016, 02:55 - CEST		0	negative
FBastiat1	RT @FrenchForTrump: #BREXIT VOTE MAKE UK GREAT AGAIN TIME TO LEAVE EU #MakeEuropeGreatAgain THIS IS OUR FREEDOM #MakeAmericaGreatAgain htâ€¦	23 Jun 2016, 02:55 - CEST		370	positive
peterson_alyx	RT @AmbJohnBolton: Britain is our strongest and most important European ally & #Brexit would promote the revitalization of western security.	23 Jun 2016, 02:55 - CEST		278	positive
lucy_meakin	RT @markets: Pound Reaches Highest Level of 2016 on Eve of U.K. Brexit Voting https://t.co/goDSmBZoW5 https://t.co/9HUxUzSphj	23 Jun 2016, 02:56 - CEST	London	21	neutral
andrewnappi	RT @FrenchForTrump: #BREXIT VOTE MAKE UK GREAT AGAIN TIME TO LEAVE EU #MakeEuropeGreatAgain THIS IS OUR FREEDOM #MakeAmericaGreatAgain htâ€¦	23 Jun 2016, 02:56 - CEST	Occupied Florida	372	positive
ConsumerFYI	#Remainers' US "partners" | The #FederalReserve is Pushing The #Economy to â€œThe Verge of Final Implosionâ€• https://t.co/xFhR9HvpaI #Brexit	23 Jun 2016, 02:56 - CEST	US, Africa, EU	0	negative
Efekto10	MÃ©xico y el â€œBrexitâ€• la columna de @JuanCLastiri https://t.co/OIbmeAWehE	23 Jun 2016, 02:56 - CEST		0	neutral
roxyloveslucy	RT @JaredWyand: BRITISH MUSLIMS POLL: 66% say they wouldn't warn of a terrorist attack #Brexit #EUref #TrumpSpeech #NoBillNoBreak https:â€¦	23 Jun 2016, 02:56 - CEST	Indiana	255	negative

KiartivichSC	RT @PetroleumEcon: Brexit: The UK will probably vote to stay, but oil markets fear the potential fallout (FREE) https://t.co/tMGPzaTUos httâ€¦	23 Jun 2016, 02:56 - CEST		13	negative
RossFrenett	Jesus lads, this ominous pre referendum thunder storm is, well... ominous #Brexit #thunder	23 Jun 2016, 02:56 - CEST	London	0	negative
Lady_Sappho	RT @peacelovedixie: If you are British, I don't know how you can watch this and even consider voting remain. #brexit #VoteLeave https://t.â€¦	23 Jun 2016, 02:56 - CEST		2	neutral
Bigdatahires	Very interesting! Inferences drawn from #BigDataAnalytics done on #Brexit is contrary to mainstream #media sentiment https://t.co/Cq24WgzTZ7	23 Jun 2016, 02:56 - CEST	Chicago, USA	0	positive
Hedgeye	Cartoon of the Day: Enough Already! Get our daily cartoon emailed for free: https://t.co/9UayxdPCQF #Brexit https://t.co/8kxPiqPYZH	23 Jun 2016, 02:56 - CEST	Stamford, Connecticut	0	negative
memosquera	RT @SCabreraS: FrenÃ©tico final de campaÃ±a para convencer al 10% de indecisos. Cameron podrÃa sufrir las consecuencias de un Brexit https://â€¦	23 Jun 2016, 02:56 - CEST	Venezuela	14	negative
khunmilk	RT @moui: à¹€à¸§à¸¥à¸²à¸„à¸™à¹„à¸— à¸¢à¸”à¸¹à¸ªà¸à¸¹à¹‰à¸›à¸‚à¹ˆà¸²à¸§ "à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´" à¹€à¸£à¸·à¹ˆà¸à¸‡ Brexit à¸— à¸µà¹ˆà¸—à¸³à¸à¸à¸à¸¡à¸²à¸¥à¸°à¹€à¸- à¸µà¸¢à¸”à¸¡à¸²à¸à¸™à¸µà¹ˆà¹„à¸¡à¹ˆà¸£à¸¹à¹‰à¸ªà¸¶à¸ •à¸à¸°à¹„à¸£à¹€à¸¥à¸¢à¹€à¸«à¸£à¸à¸„à¸£à¸±à¸šà¸§à¹ˆà¸² "à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´" à¸šà¹‰à¸²à¸™à¹€à¸£à¸²à¸¡à¸±à¸™à¹‚à¸„à¸•à¸£à¸œà¸´à¸” à¸›à¸à¸•à¸´â€¦	23 Jun 2016, 02:56 - CEST	à¸ªà¸•à¹ Šà¸- à¸¢à¹•à¸ ¥à¸™à¸” à¹Œ	136	negative
IndeCardio	RT @elohimis1: Trade barriers postBrexit would be 'foolish', says German businessman https://t.co/fddFBIlx8y via @MailOnline	23 Jun 2016, 02:56 - CEST		1	negative
vilma_pooh	RT @MUDDLAW: The latest Veritas International! https://t.co/Tg5dmcrjBE #brexit #euref	23 Jun 2016, 02:56 - CEST	Puerto Rico	2	neutral
iVoteLeave	RT @Australiaunwra6: On eve of Brexit vote, rival camps race to win over undecideds https://t.co/0zFetC6psQ tomorrow get out and #VoteLeaveâ€¦	23 Jun 2016, 02:56 - CEST	UK, not EU	4	positive
LadyConservativ	RT @chuckdevore: Hoping that our British cousins across the pond declare their independence 240 years after we declared ours. #Brexit	23 Jun 2016, 02:56 - CEST	North Carolina	5	positive
parti7sano	RT @bbcmundo: Â¿QuÃ© es el Brexit?: 7 preguntas clave para entender el referendo en Reino Unido https://t.co/BkB7XCg8Oo https://t.co/ax2hqVIIâ€¦	23 Jun 2016, 02:56 - CEST		22	positive
Cusstard	RT @afneil: Head of German Industry: postBrexit trade barriers would be "very, very foolish"; urges "trade regime to maintain levels of trâ€¦	23 Jun 2016, 02:56 - CEST		1674	negative
PW_75	Nach der Meldung, dass alle Brexit Volksentscheide komplett folgenlos sind, werden alle Meldungen und Warnungen zu einem grossen LOL WTF	23 Jun 2016, 03:13 - CEST	Deutschland	0	negative

roysimangunsong	RT @fgvdapp: Should I stay or should I go: British are divided on @Twitter about leaving the EU https://t.co/RqwOiyGGsb #EURef https://t.coâ€¦	23 Jun 2016, 03:13 - CEST	Indonesia	12	negative
bbpsn_	RT @jin_nation: à¹€à¸£à¸·à¹ˆà¸-à¸‡à¹ƒà¸«à¸à¹ˆà¸§à¸±à¸™à¸™à¸µà¹‰ #Brexit à¸-à¸±à¸‡à¸à¸¤à¸©à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´à¸à¸-à¸à¸ˆà¸²à¸à¸à¸µà¸¢à¸¹, "à¸‹à¸¹à¸ˆà¸µ" à¹€à¸¢à¸·à¸-à¸™à¹„à¸—à¸¢à¸ˆà¸±à¸šà¸•à¸²à¹€à¸¢à¹‡à¸™à¹† à¸šà¸£à¸£à¸¢à¸²à¸•à¸²à¸¨à¸—à¸µà¹ˆà¸¡à¸«à¸²à¸Šà¸±à¸¢ #nna https://t.co/HLOJLO5DSy	23 Jun 2016, 03:13 - CEST		29	neutral
yayayamamoto	RT @TheEconomist: Would foreign students apply to business schools in the UK after a Brexit? https://t.co/tn7kX34cia https://t.co/sb9DpjEPzS	23 Jun 2016, 03:13 - CEST	Hong Kong	44	neutral
DISCOVERY_Bali	RT @alexbland: #Brexit #IndependenceDay https://t.co/v9TrmBwSZg	23 Jun 2016, 03:13 - CEST	Kuta - Bali	15	neutral
kerrijacobi	RT @AllenWestArmy: Latest Brexit Poll Shows Massive Swing To Leave EU: Referendum In 12 Days https://t.co/ySvreqZQhI via @BarracudaMama	23 Jun 2016, 03:13 - CEST	Lake Charles, LA	19	positive
Wicked3s	RT @INTJutsu: If the UK doesn't get out now, there won't be another chance, as their country will be overrun & ruined #BREXIT #UK https://tâ€¦	23 Jun 2016, 03:13 - CEST	Vegas, USA	56	negative
catcherbloc	RT @ReutersBiz: Asia stocks, sterling rise as Brexit anxiety abates https://t.co/5Z7QsRREhl	23 Jun 2016, 03:13 - CEST	Jamaica	7	neutral
ForeverReagan	RT @AllenWestArmy: Latest Brexit Poll Shows Massive Swing To Leave EU: Referendum In 12 Days https://t.co/ySvreqZQhI via @BarracudaMama	23 Jun 2016, 03:13 - CEST	Texas (a.k.a. Gods Country)	19	positive
rhcm123	Also reminder that Putin is [probably] using the SVR to influence the #Brexit debate in a proLeave way. Wonder why	23 Jun 2016, 03:13 - CEST	getting coffee	0	positive
US_Threepers	RT @bluehand007: This will be our finest day.. I am confident.. #Brexit #Voteleave #Bluehand	23 Jun 2016, 03:13 - CEST	Nebraska, USA	13	positive
netzlesen	[AMTV] BREXIT to Collapse Eurozone (WARNING!!) â€“ #NWO https://t.co/fDs0imD2cW	23 Jun 2016, 03:13 - CEST		0	negative
AK47_LFC	RT @MoAnsar: Incredibly, I've heard of some poor Muslims considering Brexit, utterly unawares it's being lead by the antiMuslim far right!â€¦	23 Jun 2016, 03:13 - CEST		13	negative
abdulmalig	RT @somkiatonwimon: 1.à¸•à¸²à¸¡à¸”à¸¹à¸•à¸²à¸£à¸—à¸³à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´ BrExit à¸§à¸±à¸™à¸™à¸µà¹‰à¹€à¸£à¸·à¹ˆà¸à¸‡à¸-à¸±à¸‡à¸à¸¤à¸©à¸ˆà¸°à¸à¸à¸•à¸«à¸£à¸·à¸à¹„à¸¡à¹ˆà¸à¸-à¸à¸ˆà¸²à¸à EU à¸šà¸—à¹€à¸£à¸µà¸¢à¸™à¸ªà¸³à¸«à¸£à¸±à¸š à¸„à¸ªà¸Š.à¸„à¸·à¸-à¸à¸£à¸°à¸šà¸§à¸™à¸•à¸²à¸£à¸—à¸³à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´à¹ƒà¸«à¹‰à¸•à¸²à¸£à¸¨à¸¶à¸•à¸©à¸²â€¦	23 Jun 2016, 03:13 - CEST	14.149305,100.612188	12	negative
patricer18	RT @MLP_officiel: J'Ã©tais ce soir l'invitÃ©e du 20h de @TF1. #LoiTravail #Brexit #MLPTF1 https://t.co/uIKIUoTnAj	23 Jun 2016, 03:13 - CEST		425	neutral

TBS907	RT @geraldcelente: Paul Craig Roberts Just Exposed The Terrifying Reason Why The Elites Had To Stop Brexit At All Costs @KingWorldNews httâ€¦	23 Jun 2016, 03:13 - CEST	dirty doon	12	negative
JosephD4al	RT @AllenWestArmy: Latest Brexit Poll Shows Massive Swing To Leave EU: Referendum In 12 Days https://t.co/ySvreqZQhI via @BarracudaMama	23 Jun 2016, 03:13 - CEST	Madison, Alabama	19	positive
SmartEnergyApp	In the Science of Civilizations, Brexit Is the European Unionâ€™s Reckoning https://t.co/Ry92WlzZJy #wired https://t.co/uwJfw9DVml	23 Jun 2016, 03:13 - CEST	USA	1	neutral
CNBCi	Brexit could slam a group of countries nobodyâ€™s talking about https://t.co/fdDLJr8h1o	23 Jun 2016, 03:30 - CEST	London & Singapore studios	0	negative
ForeignAffairs	The roots of the divisions over Brexit: https://t.co/MKs9IfMjnU	23 Jun 2016, 03:30 - CEST	New York, NY	0	neutral
bankzzzgtr	à¹„à¸¡à¹ˆà¸§à¹ˆà¸² #Brexit à¸ˆà¸°à¹€à¸⍰à¸´à¸”à¸-à¸°à¹„à¸£à¸„à¸¶à¹‰à¸™ à¹‚à¸¥à¸⍰à¸§à¸±à¸™à¸žà¸£à¸¸à¹ˆà¸‡à¸™à¸µà¹‰à¸•à¹‰à¸‡à¹€à¸›à¸¥à¸µà¹ˆà¸¢à¸™à¹„à¸›à¹⍰à¸™à¹ˆà¸™à¸à¸™	23 Jun 2016, 03:30 - CEST	Bangkok, Thailand	0	neutral
NealCassady64	RT @FightingTories: Today @ABCNews24 has plenty about #Brexit polls but ZERO about these polls https://t.co/sYVYqiQL9I	23 Jun 2016, 03:30 - CEST	Falcon Bay Australia	1	negative
daliarw	Belgian PM calls for EU meeting after Brexit vote https://t.co/JakPcL1UXr via @POLITICOEurope	23 Jun 2016, 03:30 - CEST		0	neutral
FXS_Stocks_RU	Brexit Ð³Ð¾Ð»Ð¾Ð²Ð½Ð¾Ð³Ð¾ Ð¼Ð¾Ð·Ð³Ð° #Ð¢Ð¾Ð²Ð°Ñ€Ñ‹ #Ð⍰ÐºÑ†Ð¸Ð¸ #Ð¤Ð¸Ð½Ð°Ð½Ñ⍰Ñ‹ #Ð¤Ð¾Ñ€ÐµÐºÑ• #EUR #USD #JPY https://t.co/K1dtjIazCC	23 Jun 2016, 03:30 - CEST		0	neutral
ManLikeFabregas	MaÃ±ana voto Leave. #VoteLeave #Brexit	23 Jun 2016, 03:30 - CEST	Antigua RepÃºblica Yugoslava de	0	positive
elsolde_mexico	#Finanzas Brexit preocupa a la economÃa de EU: Casa Blanca https://t.co/pESct4tNle https://t.co/aLfT9YvnRd	23 Jun 2016, 03:30 - CEST	Ciudad de MÃ©xico	0	negative
EaZyForm	Brexit: Heute SchicksalsTag fÃ¼r Europa: Ã–STERREICH: Heute stimmen 45 Millionen inâ€¦ https://t.co/xVGjj0KptN	23 Jun 2016, 03:30 - CEST	Augsburg Germany	0	negative
smackey6789	RT @andrew_lilico: How supporters of Remain hope fans of Brexit feel by 2025:https://t.co/lsRopFSYXX	23 Jun 2016, 03:30 - CEST		2	negative
dd9000	RT @JohnTirman: Those shocked by #Brexit strength: every European country in 193040s had a popular, native fascist party. The Liberal ordeâ€¦	23 Jun 2016, 03:30 - CEST	USA	4	negative

smitty_one_each	Forget Project Fear. Be positive. Choose dynamism. Choose BrexitÂ | via @telegraphnews https://t.co/epL0KBSMLO	23 Jun 2016, 03:30 - CEST	NOVA	1	positive
cnnphilippines	The nonBrits guide to Brexit https://t.co/VJ84CsZH8Y https://t.co/fIXxXy6kRD	23 Jun 2016, 03:30 - CEST		0	neutral
tableaupublic	For #politicsdatamonth, @sophie_sparkes shares tips on building a live political tracker https://t.co/5G0z7BbhzZ #Brexit #EURef	23 Jun 2016, 03:30 - CEST	United States	0	neutral
imanjeetkaur	#Technology #Tech In the Science of Civilizations, Brexit Is the... https://t.co/w6wsOfs5DO https://t.co/d6F3HbsDcd https://t.co/kKJXhNJuM0	23 Jun 2016, 03:30 - CEST		0	neutral
TribulationNow	Brexit: What Is It About? Paul Craig Roberts If you read the presstitute media, Brexitâ€"the referendum tomorrow... https://t.co/QB8Zk8y4ov	23 Jun 2016, 03:30 - CEST		0	negative
MagsRG	RT @theordinaryman2: Retweet if you want out of #EU #BBCDebate #EURef #VoteLeave #Brexit #VoteRemain #InOrOut #Labour #VoteOUT https://t.câ€¦	23 Jun 2016, 03:30 - CEST	Cheshire	89	negative
ARTnewsmag	No man is an island https://t.co/aPRjuOgGeY https://t.co/uODIptUbQL	23 Jun 2016, 03:30 - CEST		1	neutral
hoofed	Debate is theatre. Respectful discussion is usually worth it. #kek #EUreferendum #EUref #Brexit https://t.co/NWE4YVwLUX	23 Jun 2016, 03:30 - CEST	United Kingdom	0	positive
rueconomicsru	Ð' ÐºÐ°Ð½ÑƒÐ½ Ñ€ÐµÑ„ÐµÑ€ÐµÐ½Ð´ÑƒÐ¼Ð° Ñ⍰Ñ‚Ð¾Ñ€Ð¾Ð½Ð½Ð¸ÐºÐ¾Ð² Brexit Ñ⍰Ñ‚Ð°Ð»Ð¾ Ð±Ð¾Ð»ÑŒÑˆÐµ https://t.co/OInc3JfgRS https://t.co/aiR3cJOnfY	23 Jun 2016, 03:30 - CEST	Ð¡Ð°Ð½ ÐºÑ‚-ÐŸÐµÑ‚ ÐµÑ€Ð± ÑƒÑ€Ð³, Ð Ð¾Ñ• Ñ•Ð¸Ñ•	0	neutral
UnaFreemann	Brexit: What Is It About? :Â Information Clearing House ICH https://t.co/UE6rlYiCCv	23 Jun 2016, 03:47 - CEST	germany	0	neutral
augustofiscal	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 03:47 - CEST	London, England	4098	positive
lucie_buchan	To #LeaveorStay? Interesting breakdown of the #Brexit referendum by @business Intelligence Economist Dan Hanson https://t.co/cPSGxfhfCN	23 Jun 2016, 03:47 - CEST	Melbourne, Victoria	0	positive
bigblasterstock	https://t.co/4BGFf4Flhg Asia stocks, sterling rise as Brexit anxiety abates	23 Jun 2016, 03:47 - CEST		0	negative
RonaldARomero	@FoxBusiness #Brexit Save yourself and leave the EU, or lose your rights and your country and a culture.	23 Jun 2016, 03:47 - CEST	Washington, USA	0	positive
AlonzoPonce	If you cannot stay current, please do not try to. https://t.co/mCElQtjlyt	23 Jun 2016, 03:47 - CEST	Long Beach, CA	0	negative

Ug_UkCrawley	Cameron redfaced after German official says Brussels WILL trade with Britain after Brexit: DAVID Cameron and... https://t.co/gbcJ9vA0dF	23 Jun 2016, 03:47 - CEST	Crawley, England	0	negative
baumsche	RT @FrenchForTrump: #BREXIT VOTE MAKE UK GREAT AGAIN TIME TO LEAVE EU #MakeEuropeGreatAgain THIS IS OUR FREEDOM #MakeAmericaGreatAgain htâ€¦	23 Jun 2016, 03:47 - CEST	United States	413	positive
___dawood	RT @ajay_mahil: This is God warning you about a brexit	23 Jun 2016, 03:47 - CEST		5	negative
trevordoge	I liked a @YouTube video https://t.co/wdJQWnzHHw BREXIT to Collapse Eurozone (WARNING!!)	23 Jun 2016, 03:47 - CEST	Collingwood, Ontario, Canada	0	negative
imharisss	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 03:47 - CEST		2656	positive
merendon	â€œNo habrÃ¡ ningÃºn tipo de renegociaciÃ³nâ€•, advierte Juncker a quienes apoyan Brexit https://t.co/YbR3xBd5sq vÃa @AristeguiOnline	23 Jun 2016, 03:47 - CEST		0	neutral
ulf_blombergswe	RT @Zwepol: Noterar att de som propagerar mot #Brexit verkar vara desamma som propagerar fÃ¶r kravlÃ¶s #migpol. DÃ¥ vet man hur landet liggerâ€¦	23 Jun 2016, 03:47 - CEST	Sweden's westcoast	6	neutral
AngleRight	RT @zerohedge: Brexit: Global Trigger Event, Fake Out Or Something Else? https://t.co/eWLV3c7V1j	23 Jun 2016, 03:47 - CEST	St. Louis	7	negative
Bigmind39	The Conservative Case Against Brexit https://t.co/7VhlcqkgaS via @ForeignAffairs	23 Jun 2016, 03:47 - CEST	Danbury CT	0	negative
TRUMP_NOW2016	RT @michaeljohns: The #UK is a great nation and still a special relationship. Britain should be governed by British. #Leave, friends. #Brâ€¦	23 Jun 2016, 03:47 - CEST		37	positive
VentaCisternas	Brexit: El dilema britÃ¡nico https://t.co/qdaK6N9FeB https://t.co/qdaK6N9FeB Brexit: El dilema britÃ¡nico... https://t.co/kYfY7qnM2J	23 Jun 2016, 03:47 - CEST	Guadalajara, Jalisco	0	positive
RonaldARomero	@EuroRaver #Brexit Save yourself and leave the EU, or lose your rights and your country and a culture.	23 Jun 2016, 03:47 - CEST	Washington, USA	0	positive
ssc000	RT @JASEMARKRUTTER: Vote like you've never voted before! A vote for LEAVE EU is a vote for PEOPLE POWER! Retweet! #Brexit #BrexitOrNot httpâ€¦	23 Jun 2016, 03:47 - CEST	Nottinghamshire, UK	32	positive
Mrs_Coder	RT @ForeignAffairs: The roots of the divisions over Brexit: https://t.co/MKs9IfMjnU	23 Jun 2016, 03:47 - CEST		8	neutral
JhieRamores	RT @ConceptGrp: Currency traders in Singapore will be at their desks from 3am to await #Brexit results https://t.co/QtzeX2LcV1 https://t.coâ€¦	23 Jun 2016, 04:04 - CEST		1	neutral

RevolucionMON	#Monagas #Maturin La intriga del 'brexit': Â¿quÃ© pasarÃ¡ si el Reino Unido abandona la UE? https://t.co/4FXyVh08fs	23 Jun 2016, 04:04 - CEST	Maturin, Estado Monagas.	0	negative
sam0398	RT @ElizabethHurley: Vote tomorrowwhatever your persuasion. I'm for #Brexit & promise to neither gloat nor whinge. But VOTE! https:â€¦	23 Jun 2016, 04:04 - CEST		2649	negative
snaxolotl	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 04:04 - CEST	your gin joint â€¢ Adelaide, AU	4126	positive
Audrey4f	need2know: Investors get Brexit jitters: Local shares poised to open lower as investors get defensive ahead o... https://t.co/rPgkVbhDmP	23 Jun 2016, 04:04 - CEST	Sydney, New South Wales	0	negative
theordinaryman2	RT @theordinaryman2: We are #VoteLeave #EURef #LoveEuropeLeaveEU #Brexit #remain #INorOUT #Labour #VoteOUT https://t.co/3ozM3KOJJW	23 Jun 2016, 04:04 - CEST	GREAT Britain	19	positive
sherise1313	RT @Grizedale2974: The most stupid woman ever to hold power Theresa May says many Britons â€˜BENEFIT GREATLYâ€™ from Sharia Law https://t.co/dâ€¦	23 Jun 2016, 04:04 - CEST	Free World	3	negative
allgringo	RT @ReutersBiz: Asia stocks, sterling rise as Brexit anxiety abates https://t.co/5Z7QsRREhI	23 Jun 2016, 04:04 - CEST	Japan	23	neutral
allengilmer	His own private Brexit. https://t.co/bALy9b0BeP	23 Jun 2016, 04:04 - CEST	Austin, TX	0	neutral
DarmansyahID	Menkeu: Kekhawatiran Brexit Turun https://t.co/MnSukxt83p	23 Jun 2016, 04:04 - CEST	DKI Jakarta - Kota Lemang	0	NA
imovemanchester	RT @ianbremmer: Online & telephone polling in runup to the Brexit referendum. It's close... https://t.co/L2kvxK8Ug5	23 Jun 2016, 04:04 - CEST	manchester	11	negative
deboraschach	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 04:04 - CEST	Porto Alegre | RS	4126	positive
shabz67	RT @dubemol: Brexit: The UK's Donald Trump moment https://t.co/B5vYWb0RUL	23 Jun 2016, 04:04 - CEST	somewhere	1	neutral
jeffrush	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 04:04 - CEST	Arlington, TX	4126	positive
Aniatoune	https://t.co/mCz7rgyBbk	23 Jun 2016, 04:04 - CEST	FRANCE, THIAIS	0	NA
R_de_Gerber	RT @Stop_The_EU: Don't make Britain accountable for the failings of an EU and the â‚¬uro. #Brexit https://t.co/hc9sr3lyHw	23 Jun 2016, 04:04 - CEST	Weybridge & Wimbledon, UK	9	negative

RottenBanadora	"The message is fear, fear, fear!" Peter Shore Brexit like it's 1975 https://t.co/q3ooP0C3dj https://t.co/AnW03YXpol	23 Jun 2016, 04:04 - CEST	Washington, DC	0	negative
DigiHunk	RT @JantaKaReporter: British voters are taking part in historic referendum today to decide if they want to stay in or leave Europe https://â€¦	23 Jun 2016, 04:04 - CEST	India	2	positive
demencius74	LOL #brexit #bremain #BremainVsBrexit #Merkel #Juncker https://t.co/oRFjFpJT18	23 Jun 2016, 04:04 - CEST	All over the net	0	negative
RogerJordan12	RT @Nigel_Farage: It's time to get our borders back, our democracy back and our country back. #Brexit https://t.co/eArDsfxlO3	23 Jun 2016, 04:04 - CEST	DFW * North Texas	1214	negative
KarjalainenFi	Brexit hankaloittaisi verkkoostosten palauttamista https://t.co/N5OIIIqUeB	23 Jun 2016, 04:21 - CEST	Pohjois-Karjala	0	negative
KarjalainenFi	Brexit todennÃ¤kÃ¶inen, seuraukset ennakoimattomat https://t.co/5dgU0ueG31	23 Jun 2016, 04:21 - CEST	Pohjois-Karjala	0	negative
briliano	Asia stocks, sterling rise as Brexit anxiety abates https://t.co/xm9pEls0o8 via @Reuters	23 Jun 2016, 04:21 - CEST	Taiwan	0	negative
pao_jimennez	RT @_CarlosPak: Horarios clave #Brexit #Bremain Jun23 Horario Mex. 1am4pm Votaciones 11pm Conteo preliminar Jun24 Horario Mex 1amâ€¦	23 Jun 2016, 04:21 - CEST	MÃ©xico, D.F	2	negative
Tech_Law	Brexit: Potential Consequences For European Union Trademarks https://t.co/yIOfJbqOCB | by @foleyhoag (via @IPLawAlerts)	23 Jun 2016, 04:21 - CEST	JDSupra.com	0	neutral
pierceipctr	Brexit: Potential Consequences For European Union Trademarks JD Supra (press release) (0 visits): https://t.co/jx93fY9iS8	23 Jun 2016, 04:21 - CEST	Concord, NH, USA	0	neutral
Alyalvarez2005	RT @InfobaeAmerica: Boris Johnson: "Este jueves puede convertirse en el dÃa de la independencia" https://t.co/knbTYW33TW #Brexit https://t.â€¦	23 Jun 2016, 04:21 - CEST		10	neutral
falconlink19	RT @Internazionale: La Brexit Ã¨ un alibi per i politici europei poco coraggiosi, scrive Eric Jozsef. https://t.co/QT8rby1WSz	23 Jun 2016, 04:21 - CEST		13	negative
StarryKnight47	RT @LeaveEUOfficial: #Brexit leads in latest poll, carried out by the most accurate pollster at the 2015 General Election https://t.co/0wplâ€¦	23 Jun 2016, 04:21 - CEST	Arizona, USA	267	positive
BurtonUniform7	RT @LeaveEUOfficial: Hannan reminds #c4debate that there is no such thing as EU money, only taxpayers money #Brexit	23 Jun 2016, 04:21 - CEST		274	positive
RightAsRain7	RT @BasimaFaysal: #Brexit https://t.co/aSyrswZDVY	23 Jun 2016, 04:21 - CEST		5	neutral

marbasch	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 04:21 - CEST	Buenos Aires	4189	positive
AceDailyNews	#AceNewsReport Japan official says concerned about Brexit impact on FX and financial markets:... https://t.co/YBdYSyBXRg @AceFinanceNews	23 Jun 2016, 04:21 - CEST	United Kingdom	0	neutral
Breaking144	#AceNewsReport Japan official says concerned about Brexit impact on FX and financial markets:... https://t.co/L0qVYfWzGi @AceFinanceNews	23 Jun 2016, 04:21 - CEST		0	neutral
WomenWorldNews1	#Racism #Racist :(Project Racism rebounds in Brexit vote Britain to Remain but EU supers... https://t.co/es1BzYGARB #UniteBlue #Tcot	23 Jun 2016, 04:21 - CEST	New Jersey, USA	0	negative
cwalshUK	RT @drdeathmont: As an Australian, can you please point me in the right direction for some #Brexit perspective @warrenellis and/or @neilhimâ€¦	23 Jun 2016, 04:21 - CEST	Portsmouth	2	positive
Traders_Edge	Japan official says concerned about Brexit impact on FX and financial markets: Deputy Chief Cabinet Se... https://t.co/JDET9eD9pJ #forex	23 Jun 2016, 04:21 - CEST		0	positive
TejalFatania	RT @fteconomics: Europe considers implications of Brexit https://t.co/no3rYTXyTh	23 Jun 2016, 04:21 - CEST	United Kingdom	2	neutral
possiejim	@SenPaterson RE your Brexit pitch,are you aware of this appalling UK Govts' discrimination?https://t.co/ZCmTcra1tU costing Oz budget $1 BN?	23 Jun 2016, 04:21 - CEST	Sydney	0	negative
outreach2004	BREXIT: Israel Needs UK to Remain in EU to Fight Threats, Says PM David Cameron Israel News... https://t.co/NFiQbjegjV via @binalerts	23 Jun 2016, 04:21 - CEST	Citra, Florida	0	negative
andbaker	If #Brexit fails start a tradition where EU slams the door in the face of the PM symbolizing EU's independence from provincial government.	23 Jun 2016, 04:39 - CEST		0	negative
50WomenProject	RT @WSJ: Eastern Europeans in U.K. rush to apply for citizenship ahead of Brexit referendum https://t.co/EOSypiPdIV	23 Jun 2016, 04:39 - CEST	San Francisco, CA	31	neutral
Rebecca_A_Perez	RT @FortuneMagazine: Why Brexit will be a disaster for Ireland https://t.co/ucEt4v4CJj	23 Jun 2016, 04:39 - CEST		5	negative
Bradders71	https://t.co/z3Jh6JIUWV #malin vote Leave. Please read article	23 Jun 2016, 04:39 - CEST	London	0	positive
abrah6m	â– Escucha â€œBorn in The EUâ€• la nueva canciÃ³n de Spector https://t.co/B1sIfzozMs | @sopitas	23 Jun 2016, 04:39 - CEST	MichoacÃ¡n de Ocampo, MÃ©xico	0	neutral
Plasta1	Escucha â€œBorn in The EUâ€• la nueva canciÃ³n de Spector https://t.co/4ytWxPCbrE	23 Jun 2016, 04:38 - CEST		0	neutral
lalo_514	Escucha â€œBorn in The EUâ€• la nueva canciÃ³n de Spector https://t.co/V9YCH5ezvX	23 Jun 2016, 04:38 - CEST	Mexico	0	neutral
twitfer	#brexit https://t.co/TunqlLAp3Y	23 Jun 2016, 04:38 - CEST		0	negative

loreconsentida	El quintento londinense Spector estrenÃ³ â€œBorn in The EUâ€• una nueva canciÃ³n en la que expresan su sentir acerca del Brexit y todos los...	23 Jun 2016, 04:38 - CEST		0	negative
Abogangster45	Escucha â€œBorn in The EUâ€• la nueva canciÃ³n de Spector: El quintento londinense Spector estrenÃ³ â€œBorn in The EU... https://t.co/G6Jo53XdfI	23 Jun 2016, 04:38 - CEST	Quintana Roo, MÃ©xico	0	neutral
jeffcliff1	https://t.co/syMqnMYyAi Predictionbook suggests about 1:2 odds of #brexit happening	23 Jun 2016, 04:38 - CEST	PA, #tbay ,Milky Way,Laniakea	0	neutral
Rattleone	Hmm."Yes or no". Let me sleep on it baby baby let me sleep on it,I'll give you an answer in the morning. UK..I hope you get better..#Brexit	23 Jun 2016, 04:38 - CEST	22 Acacia Avenue	0	positive
JohnSerocold	RT @JohnOSullivanNR: At stake in Brexitwhether UK stays in an undemocratic polity or regains its selfgoverning democracy? Not trivial: hâ€¦	23 Jun 2016, 04:38 - CEST	London	20	negative
osscarjuarez	Escucha â€œBorn in The EUâ€• la nueva canciÃ³n de Spector https://t.co/JTLICflia5	23 Jun 2016, 04:38 - CEST	Coahuila	0	neutral
Chinks07	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 04:38 - CEST	New Delhi	2779	positive
Rosalia_glez	Escucha â€œBorn in The EUâ€• la nueva canciÃ³n de Spector https://t.co/Vb7gFHm0Sb	23 Jun 2016, 04:38 - CEST	Coahuila	0	neutral
actualite24	Brexit: A J2 du rÃ©fÃ©rendum, dÃ©bat enflammÃ© devant 6.000 spectateurs Ã Londres. #D22 https://t.co/nX8hQxOyHI	23 Jun 2016, 04:38 - CEST	France	0	neutral
Chiroyo	The latest æ—¥åˆŠ Chiro! https://t.co/hotjEY4b9o Thanks to @sebapefer @chikashiojima @cubanadventures #rollingstones #brexit	23 Jun 2016, 04:38 - CEST	TOKYO	0	positive
vcapozzi2	RT @Forbes: Poll: 80% of Americans think Britain should leave the EU https://t.co/EPNk488c9h https://t.co/3mqaV8v5KD	23 Jun 2016, 04:38 - CEST		337	positive
NachomanPue	RT @Milenio: â–¶ Problemas en el paraÃso...Â¿QuÃ© es el #Brexit?https://t.co/5ZaiAGHG4t https://t.co/mKp4DQBrYD	23 Jun 2016, 04:38 - CEST	Puebla, MÃ©xico	9	negative
BTCPosts	#bitcoinnews #bitcoin #bitcoinews #wsj U.S. Stocks Ride the Waves of Brexit Anxiety https://t.co/MXXotu1XcE #bitcoins #bitnews #bitcointalk	23 Jun 2016, 04:56 - CEST	Miami Florida	0	neutral
mkmknani	RT @1_texanna: We are praying for you Britain!! Americans stand with you! #Brexit #VoteLeave https://t.co/Ux0Dv9UBu9	23 Jun 2016, 04:56 - CEST	Ft Worth Tx/Bellingham WA	10	positive
Hoofdnieuws1	https://t.co/CsupbjE3eC To brexit or not to brexit: wat je moet weten https://t.co/b3SaBXxJSw	23 Jun 2016, 04:56 - CEST		0	negative
TrafficDiddy	What is Brexit and the Ramifications of Leaving the European Union [UK News] https://t.co/CVQZDMFCAf https://t.co/83r0PfXBL1	23 Jun 2016, 04:56 - CEST	Traffic All Around	0	negative

			The World.		
kumarabhi358	RT @dwnews: Hollande, Juncker raise stakes on Brexit https://t.co/Yb2guYnIjA https://t.co/Pvh01UMYuq	23 Jun 2016, 04:56 - CEST		2	neutral
ONLYSANJEEVJHA	RT @DDNewsLive: #Brexit : U.K. goes to polls in an historic referendum on whether the country should remain a member of the European Unionâ€¦	23 Jun 2016, 04:56 - CEST	Daman	3	negative
BrandonJLandry	RT @Blondetigressnc: The latest The Nurse Chronicles! https://t.co/fLmMbIIL7z Thanks to @BUDDHA_DRAGON1 @OsagieSelma @Gibbsdithers #brexitâ€¦	23 Jun 2016, 04:56 - CEST		2	positive
CecilSDavis	RT @Reuters: Oil prices rise as markets on tenterhooks ahead of Brexit vote https://t.co/Az4U73CQXO https://t.co/ZFOmIuG3Rn	23 Jun 2016, 04:56 - CEST	British Columbia, Canada	48	neutral
SamRamalheira	Prediction: #Brexit is defeated and everything stays (more or less) the same	23 Jun 2016, 04:56 - CEST		0	negative
grahamlynas	RT @JASEMARKRUTTER: Be proud today and vote LEAVE EU to take back control! Power to the People! #Brexit #VoteLeave https://t.co/0Oeb644wfb	23 Jun 2016, 04:56 - CEST	Durham, England	2	positive
trumpcountry	RT @FLforTrump16: #Brexit #BBC #EU Rule Britannia & Without the damn continent of Europe infested with #Muslim sympathizer liberal Pollyaâ€¦	23 Jun 2016, 04:56 - CEST	United States	1	negative
CarlaChamorros	97% of Undecided to vote #Brexit.... Brexit WINS ! Referendum a 'statistical dead heat' ? https://t.co/DoMFJLsOjH https://t.co/j2VgrSwt9K	23 Jun 2016, 04:56 - CEST	Granada, Nicaragua	0	negative
marsquad51	RT @RobLowe: To my UK friends: how do you feel about the "Brexit"? And why? Very curious to get the REAL story.	23 Jun 2016, 04:56 - CEST	Pahrump,NV	15	negative
romulasry	Live Thread: The BREXIT Vote: #Britain votes on independence from the European Union https://t.co/QfdcuL27wI	23 Jun 2016, 04:56 - CEST	Southern California, USA	0	neutral
CuspCreative	What is Brexit and the Ramifications of Leaving the European Union [UK News] https://t.co/CdMiY7kkoG	23 Jun 2016, 04:56 - CEST	Southern California	0	negative
10thAmendment	RT @ooohouchburn: @10thAmendment today we fly free! #Brexit https://t.co/TQOcXZvqjJ	23 Jun 2016, 04:56 - CEST	57th State	1	positive
kurakura5o	RT @ajplus: London's mayor Sadiq Khan crushed a recent #Brexit debate â€" while fasting. Mic drop, please. https://t.co/cN5jMmfvmQ	23 Jun 2016, 04:56 - CEST		111	negative
parnsap_y	RT @Independent: Victoria Beckham is not supporting the Leave campaign https://t.co/S4zjoWSm5D https://t.co/r0tFQO1cgC	23 Jun 2016, 04:56 - CEST		19	positive

ConceptGrp	Oil prices rise as markets on tenterhooks ahead of Brexit vote https://t.co/oswRqK5xeL	23 Jun 2016, 04:56 - CEST		0	neutral
JoinMCA2016	What is Brexit and the Ramifications of Leaving the European Union [UK News] https://t.co/zn5RkNFm2Q https://t.co/kBDM5G0prV	23 Jun 2016, 04:56 - CEST	Motor Club of America, USA	0	negative
fightterror	Is Russia Really a Threat to Brexit? https://t.co/FKEcZMJpzC	23 Jun 2016, 05:13 - CEST	Jerusalem	0	negative
deathmorgan	#Brexit history is written today.	23 Jun 2016, 05:13 - CEST	Mexico City	0	neutral
JoannaWoman991	RT @JaredWyand: BRITISH MUSLIMS POLL: 66% say they wouldn't warn of a terrorist attack #Brexit #EUref #TrumpSpeech #NoBillNoBreak https:â€¦	23 Jun 2016, 05:13 - CEST	America	287	negative
ralphshields313	RT @roarielruiz4: Support from Chicago, for British freedom from the EU. May Britain reclaim sovereignty over its nation. #VoteLeave #Brexit	23 Jun 2016, 05:13 - CEST	Las Vegas, NV	2	positive
TrumpCoulter16	@ElizabethHurley You are the embodiment of British Beauty. Preserve your nation, preserve your people. #Brexit	23 Jun 2016, 05:13 - CEST	United States	0	positive
brasil2014pool	'European Union faces African migrant crisis' Underfire Merkel issues stark warning https://t.co/c1JsWkeZ44	23 Jun 2016, 05:13 - CEST	Vancouver BC	0	negative
soaneseys	@UKLabour Brexit all the way	23 Jun 2016, 05:13 - CEST		0	neutral
TMWTL79	@LittleWombat666 all the polls & indications are that Remain will win today.... Wasted opportunity #Brexit	23 Jun 2016, 05:13 - CEST		0	negative
asasays	@BBCBreaking @UEFA @UEFAEURO If Brexit wins will @FAIreland @FAWales @England @NorthernIreland be disqualified? https://t.co/1BXJXENuhw	23 Jun 2016, 05:13 - CEST	Betung Hut	0	negative
bitcoinagile	#bitcoin Price Drops $100 As Brexit Hopes Falter Blockalerts #Blockchain https://t.co/CAQEEJjmii https://t.co/BAxVobjtpe	23 Jun 2016, 05:13 - CEST	Matter Doesn't Matter	0	neutral
Sammy_Toon	Brexit is also part of protecting Ireland and Wales Britain!	23 Jun 2016, 05:13 - CEST		0	positive
Mr_VivaYolo	Â¿QuÃ© es el #Brexit? Van 7 claves para entender el referendo de Reino Unido | Por bbcmundo https://t.co/Tr0J1ABJPA https://t.co/zueGt02QXZ	23 Jun 2016, 05:13 - CEST	Mexico	0	negative
Arisfivedragon	#SinagaNews Inter Selangkah Lagi Dapatkan Bek Sayap Genoa https://t.co/UKcOfr4FlJ	23 Jun 2016, 05:13 - CEST	Kota Binjai, Sumatera Utara	0	neutral
brexiteer2016	#Brexit #EURef Sounds familiar, seems like the protocol of fear campaigning is rife these days NOT fooled #Leave https://t.co/5e2FyN6fuB	23 Jun 2016, 05:13 - CEST		0	positive
Corysim	IfindITtalent: Asia stocks, sterling rise as Brexit anxiety abates: Asian shares edged up and sterling stood ... https://t.co/BoDqPk7knD #â€¦	23 Jun 2016, 05:13 - CEST	Seattle, WA	0	neutral

miloismydaddy	RT @MikeMa_: to all my redcoat followers, vote smart tomorrow #BREXIT	23 Jun 2016, 05:13 - CEST	alla puttamelata.	3	positive
fantasymandan	$AMD $EA $WUBA $NVDA A little music as we head into this binary buzzsaw known as BREXIT. https://t.co/qa4zJVTxw6 $SPY	23 Jun 2016, 05:13 - CEST	Hawaii	0	positive
GordonFBennett	@KikiTheReds1 Get some geography mate before you comment #Scotland, #wales and #northernireland are voting too its #brexit not #eexit	23 Jun 2016, 05:13 - CEST		0	neutral
NikolasFuturist	RT @imgur: The British mood at this moment in time. https://t.co/cDozmT7lgk #Brexit https://t.co/wjwUonXATq	23 Jun 2016, 05:13 - CEST	Vancouver, BC, Canada	113	positive
tayfan2	RT @IngrahamAngle: Bono, Beckham & every other global celeb in Britain ag #Brexit. Follow the $> globalization great for them, horrid forâ€¦	23 Jun 2016, 05:13 - CEST	Somewhere in Virginia	339	negative
KostJason	RT @MikeMacck: Be a patriot. Vote Leave. #Brexit https://t.co/Kh0nHwoWkX	23 Jun 2016, 05:30 - CEST	Astoria, OR	3	positive
funfreefun	ã▯„ã‚ˆã▯„ã‚ˆã€▯23æ—¥ã▯«è‹±å›½ã▯§å›½æ°‘æŠ•ç¥¨ã€€ãƒ¼ã▯ªã▯œä»Š ã▯ªã▯©ã€▯ç–‘å•▯ç‚¹ã‚’æ‹¾ã▯£ã▯¦ã▯¿ã▯¾ã▯—ã▯Ÿ https://t.co/edyoa5pFOZ by @HuffPostJapan https://t.co/2o1bOBxCF2	23 Jun 2016, 05:30 - CEST		0	neutral
truthenomics	RT @zerohedge: Who Is The "European Movement" And Why The Answer May Change How You Vote On "Brexit" https://t.co/FKk9XFf1wm	23 Jun 2016, 05:30 - CEST		39	neutral
WaterWynd	RT @thedailybeast: Brexit makes absolutly no sense at all. Here's why: https://t.co/t4PHGYNM2O https://t.co/FZgJO9XrIN	23 Jun 2016, 05:30 - CEST		17	negative
hubinbiz	Mud, Music and MilesLong Lines as Glastonbury Clashes With Brexit Referendum https://t.co/f71sHQ6ysY vÃa @hubinbiz	23 Jun 2016, 05:30 - CEST		0	neutral
Nyheter24_7	RT @V_of_Europe: Farageâ€™s final rallying call: â€˜Itâ€™s us versus the Establishment go and vote for Britain' https://t.co/LfRgbPr9PF	23 Jun 2016, 05:30 - CEST		57	neutral
ItsDavisDavison	Mud, Music and MilesLong Lines as Glastonbury Clashes With Brexit Referendum: Their country may be about to ... https://t.co/qmV4XdDXUM	23 Jun 2016, 05:30 - CEST	Las Dream USC	0	neutral
Noonebin	RT @XxPLWxX: Dear Britain When you vote today, remember the sacrifices made so you can be free. #Brexit #VoteLeave #EUref https://t.co/HsfLâ€¦	23 Jun 2016, 05:30 - CEST	Western Australia	10	positive
agiltegar	#Follow Mud, Music and MilesLong Lines as Glastonbury Clashes With Brexit Referendum: Their country may be a... https://t.co/rwBd5opSpY	23 Jun 2016, 05:30 - CEST	Cloud â˜• Â· Melbourne	0	neutral
martinstevens27	RT @RehmanSid: According to the poll I conducted slight majority (52%) believes, #UK should #VoteLeave (#Brexit) in #EUreferendum. https://â€¦	23 Jun 2016, 05:30 - CEST	Lincoln, Lincolnshire	14	positive

BlueFloridian	Some kind of publicity stunt? Except for Princess Di, the UK hasn't gotten this much global attention since the early Empire days, #Brexit	23 Jun 2016, 05:30 - CEST		0	negative
JayDook	RT @realkingrobbo: Brexit Poll Shows 80% Of Americans Think Britain Should Leave EU https://t.co/ghlHHXsc9Q https://t.co/GM2KHRzMjN	23 Jun 2016, 05:30 - CEST		9	positive
BharatRajneeti	à¤¬à¥⍰à¤°à¥‡à¤—à¥⍰à¤œà¤¿à¤Ÿà¤ƒ à¤•à¥•à¤¯à¤¾ à¤…à¤ªà¤¨à¥€ à¤•à¤¬à¥•à¤° à¤–à¥‹à¤¦à¤¨à¥‡ à¤œà¤¾ à¤°à¤¹à¤¾ à¤¹à¥ˆ à¤¬à¥⍰à¤°à¤¿à¤Ÿà¥‡à¤¨? https://t.co/aWSyeV0wv2 via NavbharatTimes https://t.co/2dtS2PHe4V	23 Jun 2016, 05:30 - CEST	India	0	neutral
ArtofeVan	There's too much at stake for elites to let the people of #Britain exit the #EU. Even if the people win #Brexit votes, elites won't let them	23 Jun 2016, 05:30 - CEST	Megrez	0	negative
ReutersBiz	Oil rises as markets on tenterhooks ahead of Brexit vote https://t.co/WtZtuv3eyI	23 Jun 2016, 05:30 - CEST	Where you are	0	positive
poluakerford	Mud, Music and MilesLong Lines as Glastonbury Clashes With Brexit Referendum https://t.co/HCisR8CEll	23 Jun 2016, 05:30 - CEST	ÐœÐ¾Ñ•ÐºÐ²Ð°	0	neutral
toriKh	RT @benphillips76: Peak #Brexit: UK protestor tries to burn the EU flag, but can't, because of EU regulation on flammable materials https:/â€¦	23 Jun 2016, 05:30 - CEST	Australia	15077	negative
FGlyneth	RT @DavidJo52951945: RT Please take a pen to the polling station with you tomorrow & donâ€™t use a pencil #Brexit https://t.co/OYnrUyxu95	23 Jun 2016, 05:47 - CEST		548	neutral
FR33_W0RLD	RT @RealAlexJones: WATCH: Standing Ovation for Former London Mayor Over Plea to Leave #EU https://t.co/0NSiYKA5mT #VoteLeave #BREXIT #Leaâ€¦	23 Jun 2016, 05:47 - CEST	free.world@tutanota.com	91	positive
MichelBinette	RT @INTJutsu: If the UK doesn't get out now, there won't be another chance, as their country will be overrun & ruined #BREXIT #UK https://tâ€¦	23 Jun 2016, 05:47 - CEST		132	negative
IndomTrading	Oil rises as markets on tenterhooks ahead of Brexit vote TOKYO (Reuters) Oil prices rose in Asian trading o... https://t.co/b2KGiC2qFw	23 Jun 2016, 05:47 - CEST	United Kingdom	0	neutral
BizDatabase	ForexLive Asia FX news wrap: Brexit polls driving GBP still https://t.co/MiUsl1XQPm Forex news for Asia trading Thursday 23 June 2016 An aâ€¦	23 Jun 2016, 05:47 - CEST		0	neutral
CryptoSourceHQ	#bitcoin Bitcoin Price Drops Below $600 As â€˜Brexitâ€™ Hopes Falter https://t.co/wXIqxAbfYP	23 Jun 2016, 05:47 - CEST	Worldwide	0	negative
FreeCryptoCo	#bitcoin Bitcoin Price Drops Below $600 As â€˜Brexitâ€™ Hopes Falter https://t.co/4VCFZ8R0fD	23 Jun 2016, 05:47 - CEST	Worldwide	0	negative
bintanghadiputr	Brexit itu untuk kedaulatan GB . hanya keluar zona ekonomi perjanjian bilateral bisa ditata lagi. Kenapa takut?	23 Jun 2016, 05:47 - CEST	Soerabaja - Konijed de Nederlands Indische	0	negative

DomMitchell	Be smart. Don't let racism and fear win.#BetterIn #Brexit #Remain https://t.co/VclT6LNhen	23 Jun 2016, 05:47 - CEST	LA / London / Roarton, Lancs.	0	negative
balika7510	RT @BLervoire: RÃ©sultat sans appel ce soir sur @leJDD : 87% pour le #Frexit ! Un #rÃ©fÃ©rendum vite ! #Brexit #MLP2017 #AvecMarine https:/â€¦	23 Jun 2016, 05:47 - CEST		63	negative
FXS_Forex_EN	Brexit's Real Impact Would Be Gradual and Global #Stocks #Finance #Forex #GBP #SGD #SGDJPY #United Kingdom #Dow https://t.co/h5JA4w0nQf	23 Jun 2016, 05:47 - CEST	Geneva, Switzerland	0	positive
sunandavashisht	RT @myindmakers: Brexit: Will the United Kingdom leave the European Union? #Brexit https://t.co/IS1jYw8RsL	23 Jun 2016, 05:47 - CEST	Houston	1	positive
OurNewEurope	Les Britanniques votent aujourdâ€™hui sur le Brexit, tous les EuropÃ©ens sur lâ€™avenir der notre continent sur https://t.co/SBMBhbY3eS !	23 Jun 2016, 05:47 - CEST	Berne, Switzerland	0	positive
volkerpaulsen	Fjollet debat! Det Indre Markeds reelle vÃ¦rdi har INTET fyldt i medierne! Alle frygter Brexit â€“ bortset fra Putin https://t.co/FBLBvNCr71	23 Jun 2016, 05:47 - CEST		0	negative
JASEMARKRUTTER	EU referendum Thursday 23rd June. Vote LEAVE EU & return POWER to the PEOPLE! #BrexitOrNot #Brexit https://t.co/BC7nZkJddD	23 Jun 2016, 05:47 - CEST	United Kingdom Bromsgrove	0	positive
MarquardtJP	RT @BjoernSta: â€œThe time has comeâ€œ for â€œIndependence Dayâ€œ? UK Titelseiten morgen zum #EUref #Brexit via @suttonnick https://t.co/TsvVDA2iâ€¦	23 Jun 2016, 05:47 - CEST	London	5	neutral
vinodsundaram	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 05:47 - CEST	Singapore. Chennai.	4282	positive
theodor1957	Today: EU ceasing to exist, UK ceasing to exist #brexit	23 Jun 2016, 05:47 - CEST		0	negative
Janunos	RT @1u4m4: 80% of Americans believe Britain & the world would have a better future with BREXIT https://t.co/u4Nwng5Xts https://t.co/jbzI7eâ€¦	23 Jun 2016, 05:47 - CEST	Wash DC	32	positive
spain_grain	Equities like the brexit situation I guess	23 Jun 2016, 05:47 - CEST	Morton. IL Chicago expat	0	negative

pritch1963	RT @XxPLWxX: #EURef Polling day arrives & counting begins on postal votes from just one house in Tower Hamlets #Brexit #VoteLeave https://tâ€¦	23 Jun 2016, 06:04 - CEST	Nr Manchester, England	10	positive
CNCConGongora	El Brexit pone en riesgo la nota de Reino Unido y sus finanzas locales https://t.co/0vtUOarede	23 Jun 2016, 06:04 - CEST		0	neutral
lumirdto	notiven: RT: ajenglish :#Brexit and the toxicity of the UK politics https://t.co/4BBFdisNQ8 https://t.co/XLdLiNWkmJ	23 Jun 2016, 06:04 - CEST		0	negative
MrPortfofio	RT @mkopNY: US #Economy continues to deteriorate, #BONDS r a BUY, #Brexit or #Bremain is irrelevant, #STOCKS will go DOWN July https://t.coâ€¦	23 Jun 2016, 06:04 - CEST	Oregon	7	negative
splendid1040	Brexit: los 3 temas que definen el referendo sobre la permanencia o salida de Reino Unido en la UE https://t.co/p4qDmHemHN |BBC	23 Jun 2016, 06:04 - CEST		0	neutral
airgotravel	Harilela Hotels: Brexit will be tough for hotel industry: While Brexit will hit the hotel indust... https://t.co/yUg8HXgiC7 #cnbc_travel	23 Jun 2016, 06:04 - CEST	Budapest - Hungary	0	positive
redrivergrl	RT @NRO: Brexit is proof that people are fed up with government planning: https://t.co/sWpixNh5Wi	23 Jun 2016, 06:04 - CEST		34	negative
Barbiemelanii	Brexit: los 3 temas que definen el referendo sobre la permanencia o salida de Reino Unido en la UE: Los britÃ¡... https://t.co/7kWVspy5ER	23 Jun 2016, 06:04 - CEST		0	neutral
lumirdto	notiven: RT: elmundomovil :CLAVES | 20 puntos para entender el â€œBrexitâ€• de Reino Unido https://t.co/n73hHZNddF https://t.co/H0K39kKTbz	23 Jun 2016, 06:04 - CEST		0	neutral
Nalgaprontamx	Todos andan muy extraÃ±os por el #Brexit	23 Jun 2016, 06:04 - CEST	Mexico	0	negative
airgotravel	How will UK tourism be affected by Brexit?: Britain's tourism industry, while resilient, will be... https://t.co/qkQsk7be71 #cnbc_travel	23 Jun 2016, 06:04 - CEST	Budapest - Hungary	0	positive
Swaggerfamouz2	Brexit: los 3 temas que definen el referendo sobre la permanencia o salida de Reino Unido en la UE: Los britÃ¡... https://t.co/GlCYSOC2oR	23 Jun 2016, 06:04 - CEST		0	neutral
abcomsads	Harilela Hotels: Brexit will be tough for hotel industry: While Brexit will hit the hotel industry hard it wo... https://t.co/TMGB3aIO5H	23 Jun 2016, 06:04 - CEST	WorldWide	0	neutral
4rj1111	RT @dibya_shareBuzz: Merah Kya Hogah Kaliya ? #Brexit #Rexit #Exit https://t.co/Oirowb51wb	23 Jun 2016, 06:04 - CEST		6	NA
godzmei1977	RT @Reuters: Oil prices rise as markets on tenterhooks ahead of Brexit vote https://t.co/Az4U73CQXO https://t.co/ZFOmIuG3Rn	23 Jun 2016, 06:04 - CEST		60	neutral
4jingjinx	RT @somkiatonwimon: 1.à¸•à¸²à¸¡à¸”à¸¹à¸•à¸²à¸£à¸—à¸³à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´ BrExit à¸§à¸±à¸™à¸™à¸µà¹‰à¹€à¸£à¸·à¹ˆà¸à¸‡à¸à¸±à¸‡à¸⍰à¸¤à¸©à¸ˆà¸°à¸à¸¢à¸¹à¸•à¹ˆà¸à¸«à¸£à¸·à¸à¹„à¸¡à¹ˆà¸à¸⍰à¸ˆà¸²à¸⍰ EU à¸šà¸—à¹€à¸£à¸µà¸¢à¸™à¸ªà¸³à¸«à¸£à¸±à¸š à¸„à¸ªà¸Š.à¸„à¸·à¸à¸⍰à¸£à¸°à¸šà¸§à¸™à¸⍰à¸²à¸£à¸—à¸³à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´à¹ƒà¸«à¹‰à¸•à¸²à¸£à¸¨à¸¶à¸•à¸©à¸²â€¦	23 Jun 2016, 06:04 - CEST	BKK	21	negative

CNCConGongora	El Brexit tambiÃ©n define el futuro del futbol inglÃ©s https://t.co/aNAjri6x55	23 Jun 2016, 06:04 - CEST		0	neutral
AnthonySwinhoe	RT @Irelandbrexit: Great response from people of Sheffield today. If we can maximise our LEAVE turn out , we will emerge with a great victâ€¦	23 Jun 2016, 06:04 - CEST		16	positive
egatrader	Alerta en los mercados: los dos escenarios del Brexit: Si los britÃ¡nicos votan hoy por salir de la UE, las bo... https://t.co/GdEnPCPHVw	23 Jun 2016, 06:04 - CEST	Shangri-La	0	negative
Nyaranyar	RT @AMTrump4PRES: I'd like 2 dedicate this tweet 2 former lovely cultures that will only B found between the pages of a book. #Brexit httpsâ€¦	23 Jun 2016, 06:22 - CEST	Denver, CO	421	positive
onefingershort	#Brexit, stage left https://t.co/vk5hs5eG99	23 Jun 2016, 06:22 - CEST	a sandbox	0	negative
The16thChopper	RT @MaxCRoser: This is Boris Johnson before he realised that Brexit would be his chance to become PM: https://t.co/Xh5GDhGgDK https://t.co/â€¦	23 Jun 2016, 06:22 - CEST	Wolverhampton	477	positive
JosephineMaribe	RT @afpfr: #Brexit: les Britanniques votent sur leur avenir et sur celui de l'UE https://t.co/pZkCEXROta #AFP https://t.co/Pv2hM2u93m	23 Jun 2016, 06:22 - CEST	France Europe Ici&lÃ LÃ -bas...	14	neutral
Manuelsiguenza4	Â¿El fin del sueÃ±o europeo? 'Brexit' o 'Bremain', los britÃ¡nicos deciden suÂ futuro: Mientras todo el... https://t.co/LNC2myzhWv	23 Jun 2016, 06:22 - CEST	Panchimalco, El Salvador	0	negative
Loupo85	RT @ProfTimBale: The idea that English nationalism has powered support for Brexit is unduly simplistic and requires reexamination https://â€¦	23 Jun 2016, 06:22 - CEST	FRANCE (44000)	10	negative
ziruma_rojas	Â¡LABORATORIO CLINICO BACTERIOLOGICO estÃ¡ disponible! https://t.co/aTurKIrSfZ #brexit #venezuela	23 Jun 2016, 06:22 - CEST	MATURIN ESTADO MONAGAS	0	positive
thousandnews	Politico: ÎˆÏ„ÏƒÎ¹ Î¸Î± ÎµÏ€Î·ÏÎµÎ¬ÏƒÎµÎ¹ Ï„Î¿ Brexit Ï„Î·Î½ Î•Î»Î»Î¬Î´Î± ÎºÎ±Î¹ Ï„Î¿Ï…Ï‚ Î¬Î»Î»Î¿Ï…Ï‚ Â«26Â» Ï„Î·Ï‚ Î•Î•: Î¤Î± Î²Î»ÎÎ¼Î¼Î±Ï„Î± ÎµÎ¯Î½Î±Î¹ ÏŒÎ»Î± ÏƒÏ„Ï•Î±Î¼Î¼ÎÎ½Î±... https://t.co/nWHxgbPwuL	23 Jun 2016, 06:22 - CEST	GREECE	0	neutral
MiguelG_SV	Â¿El fin del sueÃ±o europeo? 'Brexit' o 'Bremain', los britÃ¡nicos deciden suÂ futuro: Mientras todo el... https://t.co/c4ibbNeuva	23 Jun 2016, 06:21 - CEST	Ciudad Arce, La Libertad	0	negative
Pontifex_minimu	RT @freeWorld2: Russian Propaganda full speed ahead to #Brexit https://t.co/5oFfYXFSq2	23 Jun 2016, 06:21 - CEST	Westfalen, Deutschland	2	neutral
RJPKlein	RT @Shaithis1404: Why has @twitter promoted @UKLabour and remain about 5 times on my TL today and not promoted leave once? Dodgy methinks.â€¦	23 Jun 2016, 06:21 - CEST		51	negative
IsaorgMt	RT @DavidJo52951945: RT Please take a pen to the polling station with you tomorrow & donâ€™t use a pencil #Brexit https://t.co/OYnrUyxu95	23 Jun 2016, 06:21 - CEST	California, USA	556	neutral

nuneatonkev	RT @Forbes: Poll: 80% of Americans think Britain should leave the EU https://t.co/EPNk488c9h https://t.co/3mqaV8v5KD	23 Jun 2016, 06:21 - CEST		388	positive
CarsonSieving	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 06:21 - CEST	New York, NY	4341	positive
Fernand1SV	Â¿El fin del sueÃ±o europeo? 'Brexit' o 'Bremain', los britÃ¡nicos deciden suÂ futuro: Mientras todo el... https://t.co/qYQykfwXUp	23 Jun 2016, 06:21 - CEST	San Salvador , El Salvador	0	negative
abpnewstv	Explained: Why, how is #UK voting to stay in or leave #EU? #EUref #BrexitOrNot #Brexit https://t.co/NJX4oVTT1a https://t.co/Rj63qtHCki	23 Jun 2016, 06:21 - CEST	India	0	positive
amalrajv	Paris joins global tributes to murdered UK lawmaker Jo Cox https://t.co/nfkVISFN9b https://t.co/q90unGxxHx	23 Jun 2016, 06:21 - CEST	chennai	0	negative
AngelaY84351507	RT @theordinaryman2: This is my Flag is it yours..? #Brexit #ILoveBritain #believeinbritain #LoveBritain #IamBritishnotEuropean #no2EU httâ€¦	23 Jun 2016, 06:21 - CEST		53	positive
FinMinIndia	RT @DasShaktikanta: 'If Brexit happens, India is ready' via Times Now App https://t.co/mNBrN3e2kY	23 Jun 2016, 06:21 - CEST	New Delhi	2	neutral
ValutaNews	Traders plan for allnight Brexit vigil https://t.co/9ApOB6obqv #ValutaNews https://t.co/5czxuDmqta	23 Jun 2016, 06:39 - CEST		0	neutral
AFUJIINIKKEI	Asia Inc. bracing for Brexit vote Nikkei Asian Review https://t.co/V8XikL4hQN #Brexit	23 Jun 2016, 06:39 - CEST		0	positive
ebruhwiler	RT @catoletters: Defeat the Establishment: Brexit https://t.co/EsampHpoQ6	23 Jun 2016, 06:39 - CEST	Los Angeles	2	negative
languillem	Le Brexit en tÃªte dans deux sondages https://t.co/hkALDplkYl	23 Jun 2016, 06:39 - CEST	france	0	positive
mpk	The UK has to roll 6 or more on 1d20 to save against Brexit. What happens if it rolls a critical failure? https://t.co/mXVfn1v3NC	23 Jun 2016, 06:39 - CEST	ZÃ¼rich, Switzerland	0	negative
actualite24	Brexit les Britanniques du sud de la France s''inquiÃ¨tent pour leur avenir. #RT https://t.co/7czIahOGNw https://t.co/mAoIhJDhyH	23 Jun 2016, 06:39 - CEST	France	0	negative
BR_Schwaben	Schwabens Wirtschaft und der Brexit: Was wÃ¤re wenn? https://t.co/TXNaUlj9fo	23 Jun 2016, 06:39 - CEST	Schwaben	0	negative
rizza_mohammad	RT @itradeph: Asian Stocks flat/lower as count down to Brexit vote just hours away...	23 Jun 2016, 06:39 - CEST	Republic of the Philippines	1	negative
stirileonlinero	BREXIT. Zi decisivÄƒ pentru viitorul Uniunii Europene. TabÄƒra proBrexit, avantaj fragil, potrivit ultimelor s... https://t.co/wtZURih2hI	23 Jun 2016, 06:39 - CEST		0	positive
Post_Iccia	RT @francofontana43: Brexit. Il problema dell'Inghilterra, e non solo...	23 Jun 2016, 06:39 - CEST	Vicchio, Toscana	2	negative

	L'apertura de @ilmanifesto https://t.co/QuBD9rM6GH				
orionfishing	"To stay, or not to stay, that is the question". Today for all UK people.... Interesting what the voting Will show...... #Brexit or #Bremain	23 Jun 2016, 06:39 - CEST	Urk, The Netherlands	0	negative
Booking_offers	RT @CLM_net: How will UK tourism be affected by Brexit?: Britain's tourism industry, while resilientâ€¦ https://t.co/CqF350ozkA	23 Jun 2016, 06:39 - CEST	Latvija	1	neutral
OpenMfndedRecs	RT @ASAPNewsLIVE: The nonBrits guide to Brexit @CNN https://t.co/BOL8fC4Bac	23 Jun 2016, 06:39 - CEST	Northern Arizona	219	positive
SebastianInVi	RT @Forbes_Mexico: Peso se tranquiliza ante posible derrota del #Brexit en referendo. https://t.co/PF7YMI3yTQ	23 Jun 2016, 06:39 - CEST	Mexico	3	negative
acucobol	RT @undercovermag: Judgement day #Brexit OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT OUT Oâ€¦	23 Jun 2016, 06:39 - CEST	iPhone: 51.466492,-2.605621	1	negative
beshe0327	RT @nhk_news: ã€⍰ã‚¤ã‚®ãƒªã‚¹å›½æ°‘æŠ•ç¥¨ã€‘ã‚¤ã‚®ãƒªã‚¹ã⍰§è¡Œã‚⍰ã‚Œã‚‹é›¢è„±ã⍰®è³›å⍰¦ã‚’å•⍰ã⍰†å›½æ°‘æŠ•ç¥¨ã⍰¯ã⍰¾ã‚‚ã⍰ªã⍰⍰æŠ•ç¥¨ã⍰Œå§‹ã⍰¾ã‚Šã⍰¾ã⍰™ã€‚æœ€æ–°ã•®ä¸–è«–èª¿æŸ»ã⍰§ã⍰¯æ®‹ç•™ãƒ»é›¢è„±å⍰Œæ–¹ã⍰®æ”¯æŒ⍰ã⍰Œã⍰⍰ã⍰£æŠ—ã€⍰äºˆæ–ã‚’è¨±ã⍰•ã⍰ªã⍰„æƒ…å‹¢ã⍰¨ã⍰ªã⍰£ã⍰¦ã⍰„ã⍰¾ã⍰™ã€‚ https://t.co/pwn3BrPkXT https://t.câ€¦	23 Jun 2016, 06:39 - CEST	æ°´ã•£ã⍰½ã⍰„ãƒ¬ã‚¿ã‚¹	15	positive
bleu48	RT @nhk_news: ã€⍰ã‚¤ã‚®ãƒªã‚¹å›½æ°‘æŠ•ç¥¨ã€‘ã‚¤ã‚®ãƒªã‚¹ã⍰§è¡Œã‚⍰ã‚Œã‚‹é›¢è„±ã⍰®è³›å⍰¦ã‚’å•⍰ã⍰†å›½æ°‘æŠ•ç¥¨ã⍰¯ã⍰¾ã‚‚ã⍰ªã⍰⍰æŠ•ç¥¨ã⍰Œå§‹ã⍰¾ã‚Šã⍰¾ã⍰™ã€‚æœ€æ–°ã•®ä¸–è«–èª¿æŸ»ã⍰§ã⍰¯æ®‹ç•™ãƒ»é›¢è„±å⍰Œæ–¹ã⍰®æ”¯æŒ⍰ã⍰Œã⍰⍰ã⍰£æŠ—ã€⍰äºˆæ–ã‚’è¨±ã⍰•ã⍰ªã⍰„æƒ…å‹¢ã⍰¨ã⍰ªã⍰£ã⍰¦ã⍰„ã⍰¾ã⍰™ã€‚ https://t.co/pwn3BrPkXT https://t.câ€¦	23 Jun 2016, 06:39 - CEST	å²¡å±±çœŒå²¡å±±å¸‚	15	positive
stewart_ws	RT @AMTrump4PRES: I'd like 2 dedicate this tweet 2 former lovely cultures that will only B found between the pages of a book. #Brexit httpsâ€¦	23 Jun 2016, 06:39 - CEST	England, United Kingdom	432	positive
Trumpindahouse	The EU doesn't care about you. Why care for them? #VoteLeave #Brexit #Bremain	23 Jun 2016, 06:39 - CEST	Tampa, FL	0	negative
shaunmcg37	RT @Dwalingen: Very telling, very true: the Remain campaign cannot say anything positive about #EU and its "future". #BREXIT #EU https://t.â€¦	23 Jun 2016, 06:39 - CEST	Southampton, UK	24	negative
billonaria	RT @nytimes: Brexit vote already has a winner: the gambling industry https://t.co/U8W3W0GqYs	23 Jun 2016, 06:56 - CEST	Espana	69	positive
Patty_Ely	RT @euronewses: BREXIT: El Reino Unido llega al referÃ©ndum con un empate tÃ©cnico en los sondeos https://t.co/zdkoh2tC4P	23 Jun 2016, 06:56 - CEST	ChillÃ¡n, San	2	neutral

			Antonio Chile		
cumulus76	Â¿El fin del sueÃ±o europeo? 'Brexit' o 'Bremain', los britÃ¡nicos deciden suÂ futuro https://t.co/nMXeMI0obB	23 Jun 2016, 06:56 - CEST		0	negative
joanberna	If you want, today... #brexit	23 Jun 2016, 06:56 - CEST		0	negative
shiontokoharu	RT @nhk_news: ã€�ã,¤ã,®ãƒªã,¹å›½æ°'æŠ•ç¥¨ã€'ã,¤ã,®ãƒªã,¹ã�§è¡Œã,�ã,Œã,‹é›¢è„±ã�®è³›å�¦ã,'å•�ã�†å›½æ°'æŠ•ç¥¨ã�¯ã�¾ã,,ã�ªã��æŠ•ç¥¨ã�Œå§‹ã�¾ã,Šã�¾ã�™ã€,æœ€æ–°ã•®ä¸–è«–èª¿æŸ»ã•§ã•¯æ®‹ç•™ãƒ»é›¢è„±å�Œæ–¹ã�®æ”¯æŒ�ã�Œã��ã�£æŠ—ã€�äº^æ–-ã,'è¨±ã�•ã�ªã�„æƒ…å‹¢ã�¨ã�ªã�£ã�¦ã�„ã�¾ã�™ã€, https://t.co/pwn3BrPkXT https://t.câ€¦	23 Jun 2016, 06:56 - CEST		112	positive
bangkokdave	RT @ajplus: London's mayor Sadiq Khan crushed a recent #Brexit debate â€" while fasting. Mic drop, please. https://t.co/cN5jMmfvmQ	23 Jun 2016, 06:56 - CEST	New York, NY	323	negative
ConectaInterna	BREXIT Boris Johnson, a la caza del Ãºltimo voto https://t.co/bN1jTRlici https://t.co/jH0gWJ5iLE	23 Jun 2016, 06:56 - CEST	El Mundo	0	neutral
tnq8943hp9qh	ã,¢ãƒ³ã,°ãƒ«è‹±é›¢è„±æ´¾ã€�ãƒžã,¤ãƒŽãƒªãƒ†ã,£ãƒ¼å¸,æ°'å•–ã,Šè¾¼ã�¿ã�«è‹¦æˆ¦ https://t.co/wuAXpfyE7Z è¨˜äº‹æŽ²è¼‰æ—¥æ™,2016å¹´ 06æœˆ23æ—¥ 13æ™,27åˆ† å¼•ç"¨å…ƒReuters ãƒã,¤ã,¿ãƒ¼ ãƒˆãƒƒãƒ—ãƒ‹ãƒ¥ãƒ¼ã,¹	23 Jun 2016, 06:56 - CEST		0	negative
naveedzonline	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 06:56 - CEST	SRKWORLD INDIA	3102	positive
tnq8943hp9qh	è‹±å›½æ°'æŠ•ç¥¨ã�¯å¤§æŽ¥æˆ¦ã�¸ã€�é›¢è„±æ´¾ãƒ»æ®‹ç•™æ´¾ã�Œæœ€å¾Œã�®è¨´ã�ˆ https://t.co/MJ87cbNXo8 è¨˜äº‹æŽ²è¼‰æ—¥æ™,2016å¹´ 06æœˆ23æ—¥ 13æ™,41åˆ† å¼•ç"¨å…ƒReuters ãƒã,¤ã,¿ãƒ¼ ãƒˆãƒƒãƒ—ãƒ‹ãƒ¥ãƒ¼ã,¹	23 Jun 2016, 06:56 - CEST		0	negative
harry_depaepe	RT @radio1be: Vandaag richten we de schijnwerpers helemaal op GrootBrittanniÃ« met #studiolondon: https://t.co/N0Iaivh9ex #brexit https://tâ€¦	23 Jun 2016, 06:56 - CEST		2	positive
KarimPadaniya	Hot off the press! Office Daily is out! Read Latest News now! https://t.co/hCxtUv6P1W #brexit #zimvind	23 Jun 2016, 06:56 - CEST	Ahmedabad	0	negative
Bekah_Phelps	RT @washingtonpost: 13 Brexit facts that will make Americans feel less embarrassed about their own election https://t.co/RyMUmZ7Ctx	23 Jun 2016, 06:56 - CEST	Athens, GA	65	negative
SharmaChetan7	#Brexit and it's possible impact on #India https://t.co/kDdE678bzy	23 Jun 2016, 06:56 - CEST	Mumbai, Maharashtra	0	neutral

BevPostma	Only mad dogs and Englishmen (..& Scotsmen, Welshmen & Northern Irishmen, & women) #BrExit . https://t.co/HE5yaeLqog https://t.co/4lEltR2nre	23 Jun 2016, 06:56 - CEST	Singapore	0	negative
tovimagr	#vimafinance Standard+Poor's: Î¤Î±Ï‡Ï⍰Ï„Î±Ï„Î· Ï…Ï€Î¿Î²Î¬Î¸Î¼Î¹ÏƒÎ· Ï„Î·Ï‚ Î’Ï⍰ÎµÏ„Î±Î½Î¯Î±Ï‚ ÏƒÎµ Ï€ÎµÏ⍰Î¯Ï€Ï„Ï‰ÏƒÎ· Brexit https://t.co/4fwWdkvOzC	23 Jun 2016, 06:56 - CEST	Athens	0	negative
WadjaKnow	RT @SweetCacophony: (1/2) If we #Brexit, #Boris will move on #Cameron. A GE will be forced. #Corbyn will challenge a hateful #Boris. 50/50â€¦	23 Jun 2016, 06:56 - CEST		1	negative
BinnsJWalker	RT @scotsdiaspora: As I've been saying for weeks.... "Would Europeans be free to stay in the UK after Brexit?" https://t.co/IOwWvXGXAv httpâ€¦	23 Jun 2016, 06:56 - CEST	Kent	8	negative
bobbywariyada	Round of 16 England "remains" in Euro2016 !!!! hahaha #EURO2016 But hv to wait for BREXIT result tomorrow. #BREXIT https://t.co/i7wYh3YoBP	23 Jun 2016, 06:56 - CEST		0	negative
v_sarabia	RT @aristeguicnn: Julio MillÃ¡n y Francisco Gil analizan con Carmen @aristeguicnn el referÃ©ndum por el llamado "Brexit" https://t.co/iAQTâ€¦	23 Jun 2016, 06:56 - CEST		58	neutral
bynxie2013	RT @ElizabethHurley: Vote tomorrowwhatever your persuasion. I'm for #Brexit & promise to neither gloat nor whinge. But VOTE! https:â€¦	23 Jun 2016, 07:13 - CEST	Surrey,England	2796	negative
R_KitanoR	RT @nhk_news: ã€⍰åŸºç¤ŽçŸ¥è-˜â‘ ã‚¤ã‚®ãƒªã‚¹å›½æ°‘æŠ•ç¥¨ã€‘é›¢è„±ã⍰®è³›å⍰¦ã‚’å•⍰ã⍰†ã‚¤ã‚®ãƒªã‚¹ã⍰®å›½æ°‘æŠ•ç¥¨ã⍰¯ã€⍰æ—¥æœ¬æ™‚é–“ã⍰®ã⍰‚ã⍰™ã€⍰é–‹ç¥¨ã⍰Œè¡Œã‚⍰ã‚Œçµ⍰æžœã⍰Œåˆ¤æ˜Žã⍰™ã‚‹è¦‹é€šã•— ã⍰§ã⍰™ã€‚ã⍰“ã‚Œã⍰¾ã⍰§ã⍰®ã‚¤ã‚®ãƒªã‚¹ã⍰¨ã⍰®é–¢ä¿‚ã⍰«ã⍰¤ã⍰„ã⍰¦ã⍰¾ã⍰¨ã‚⍰ã⍰¦ã⍰„ã⍰¾ã⍰™ã€‚ https://t.co/6FLXVmTW9U #nhk_news	23 Jun 2016, 07:13 - CEST		130	positive
matteofila	RT @LaStampa: Scienziati contro la Brexit: â€œUn atto disastroso per la ricercaâ€•Â https://t.co/Vwa2HtCheR	23 Jun 2016, 07:13 - CEST		5	negative
capellawega	RT @V_of_Europe: Dutch poll leader Geert Wilders wants a 'Nexit' after a Brexit. https://t.co/WCQf02JdK4	23 Jun 2016, 07:13 - CEST	Breda	255	neutral
DjValentino45	RT @ronaldlaessig: "Gesetze macht von der nicht gewÃ¤hlten #EUKommission. Wir wollen #Demokratie jetzt", sagt #BrexitBefÃ¼rworterin Firth.â€¦	23 Jun 2016, 07:13 - CEST	berlin, germany	2	neutral
PG_Ventures	Final Brexit Appeals Made as Polls Diverge on Referendum Eve https://t.co/DoHJvo7lao	23 Jun 2016, 07:13 - CEST	South Carolina, USA	0	neutral
luigiwewege	Final Brexit Appeals Made as Polls Diverge on Referendum Eve https://t.co/YaEtNjKStQ	23 Jun 2016, 07:13 - CEST	Columbia, South Carolina	0	neutral
VivierBFS	Final Brexit Appeals Made as Polls Diverge on Referendum Eve https://t.co/2oeDDm272d	23 Jun 2016, 07:13 - CEST	Auckland, New Zealand	0	neutral

sandramartel	Ese matrimonio necesita terapia y no un divorcio. A hrs de saberlo @InfobaeAmerica: #Brexit: Tiembla un gigante y el mundo espera atÃ³nito	23 Jun 2016, 07:13 - CEST	PERÃš	0	negative
NikauGlobal	Final Brexit Appeals Made as Polls Diverge on Referendum Eve https://t.co/Q2YQ002wrv	23 Jun 2016, 07:13 - CEST	Auckland, New Zealand	0	neutral
VivierGroup	Final Brexit Appeals Made as Polls Diverge on Referendum Eve https://t.co/qCIZ4YEYPT	23 Jun 2016, 07:13 - CEST	Private Wealth Management	0	neutral
GaryPWarner1	Final Brexit Appeals Made as Polls Diverge on Referendum Eve https://t.co/HMWJNyqiOd	23 Jun 2016, 07:13 - CEST	Auckland City, New Zealand	0	neutral
alihfar	Final Brexit Appeals Made as Polls Diverge on Referendum Eve https://t.co/hLomzU1V6Z	23 Jun 2016, 07:13 - CEST	Auckland, New Zealand	0	neutral
GladiatorPosse	RT @robezenk: @libertytarian They're gonna chicken out... #Brexit https://t.co/qcqA7ICeDj	23 Jun 2016, 07:13 - CEST		1	negative
bigirwenkyaj	RT @TIME: Mud, music and 12hour traffic jams as Glastonbury clashes with Brexit vote https://t.co/NbSSx3MxSr	23 Jun 2016, 07:13 - CEST	Entebbe, Uganda	23	neutral
AairwolfDevine	RT @FionnaighHessey: Only one of many reasons I will be voting LEAVE. #Brexit https://t.co/9zhlmBAqxb	23 Jun 2016, 07:13 - CEST		1	positive
TommyBarrs	RT @txbeardman: Ok Britain. It's midnight in Texas, but it's 6am your time. Go vote. #Brexit #VoteLeave #VoteLeaveTakeControl https://t.co/â€¦	23 Jun 2016, 07:13 - CEST		3	positive
rollieo122	RT @tagesschau: BrexitDossier: Goodbye nach 43 Jahren? https://t.co/XNb5m65v71 #Brexit	23 Jun 2016, 07:13 - CEST	West Sussex, UK	5	negative
TheSagarKumar	Game of Thrones Has a Lot at Stake in the Brexit Vote. Seriously. https://t.co/WjwSUslxE8 https://t.co/T9P3I8Gpbr	23 Jun 2016, 07:13 - CEST	à¤-à¤¾à¤°à¤¤	0	negative
FelixMorquecho	RT @eljukebox: Todo el mundo sabe que si el Brexit fuese a afectar a los espaÃ±oles votaria tambien EspaÃ±a.	23 Jun 2016, 07:13 - CEST	eibar	18	neutral
OutTheEU	RT @V_of_Europe: Even France would LEAVE the â€˜sadâ€™ EU if it had a referendum, top French philosopher says https://t.co/XHPxzxRaK3 https://tâ€¦	23 Jun 2016, 07:30 - CEST	Yorkshire and The Humber, England	56	positive
LBettie	RT @instyle_UK: Bed, leggings + 45 things we'd rather be IN right now (including Europe) https://t.co/02FplBgZjn #Brexit #StrongerIn https:â€¦	23 Jun 2016, 07:30 - CEST		2	negative
UkraineHotNews	Đ ĐµÑ„ĐµÑ€ĐµĐ½Đ´ÑƒĐ¼ Ñ‰Đ¾Đ´Đ¾ Brexit: Đ‘Ñ€Đ¸Ñ‚Đ°Đ½Ñ†Ñ– Ñ⍰ÑŒĐ¾Đ³Đ¾Đ´Đ½Ñ– Đ²Đ¸Ñ€Ñ–ÑˆĐ°Ñ‚ÑŒ Đ¿Đ¸Ñ‚Đ°Đ½Đ½Ñ• Ñ‡Đ»ĐµĐ½Ñ⍰Ñ‚Đ²Đ° ĐºÑ€Đ°Ñ—Đ½Đ¸ Đ² Đ„Đ¡: Đ”Ñ–	23 Jun 2016, 07:30 - CEST	Kyiv (Kiev), Ukraine (ĐšĐ¸Ñ—Đ²,	0	neutral

	Ð»ÑŒÐ½Ð¸Ñ†Ñ– Ñƒ Ð²Ñ•Ñ–Ñ… 382 Ð²Ð¸Ð±Ð¾Ñ€Ñ‡Ð¸Ñ…... https://t.co/gUmXddGp4I		ÐšÐ¸ÐµÐ², Ð£ÐºÑ€Ð°Ñ—Ð½Ð°)		
ma_am_42_21	RT @ndaktuell: #GroÃŸbritannien entscheidet: Â»RemainÂ« oder Â»LeaveÂ«? Referendum Ã¼ber â•°den Verbleib in der EU lÃ¤uft https://t.co/fuKKKE5i00 #Bâ€¦	23 Jun 2016, 07:30 - CEST	Weltmetropoldorf Wien.	4	negative
ETMarkets	F&O data shows #Brexit or no Brexit, #Nifty may not slip below 8,000 https://t.co/uX5U1DakIl By @kshanand https://t.co/cL9wP3SSJ4	23 Jun 2016, 07:30 - CEST		0	neutral
reneverkroost	RT @geertwilderspvv: Britain, today you can make history! Independence Day. #Brexit https://t.co/cCecLxTDWO	23 Jun 2016, 07:30 - CEST		71	positive
lzzer	RT @thehill: Trump on Brexit: "I donâ€™t think anybody should listen to me" https://t.co/eLE9Fh2CHQ https://t.co/OwvnX2W3Ri	23 Jun 2016, 07:30 - CEST	5280	18	positive
mbellido	RT @LoyolaEcon: AnÃ¡lisis del Prof. @macarflo en La Semana EconÃ³mica: el Brexit. https://t.co/0l7Y2zGoqP	23 Jun 2016, 07:30 - CEST	EspaÃ±a	4	neutral
fxnewsfeedcom	Euro to Look Past PMI Data with "Brexit" Worries at the Forefront https://t.co/z8L41rpIoJ	23 Jun 2016, 07:30 - CEST		0	positive
hanshafner	Yes! I can't wait to not have to listen to your twisted rants in the European Parliament. Please leave!! #Brexit https://t.co/Dc4jXOTRTM	23 Jun 2016, 07:30 - CEST	Berlin, Germany	0	positive
m_barisione	RT @FrankVollmer: #Brexit: Titelseiten britischer Zeitungen am heutigen Referendumstag. V.a. BoulevardblÃ¤tter werben fÃ¼r EUAustritt. httpsâ€¦	23 Jun 2016, 07:30 - CEST	milano & genova, italy	1	negative
tsangarisp	Remain or Leave? Today is the day #uk #brexit #england #eu #EUreferendum https://t.co/jzFrdkOzBP	23 Jun 2016, 07:30 - CEST	CYPRUS Nicosia	0	negative
Dr_Esterichia	@ForreMarti @ElTegid alguien puede explicarme quÃ© pasa? Aqui solo hablan de futbol y brexit. Debajo de los pirineos no hay nada. Gracias!	23 Jun 2016, 07:30 - CEST	marsella	0	negative
Sophiesweb33	RT @MizzVileAnimalO: @sandralaegel @AliasStAlias @Sophiesweb33 @MaryamNamazie @Capeheritjamie #isisAREMuslims #Brexit #VoteLeave #Remain htâ€¦	23 Jun 2016, 07:30 - CEST		1	negative
DagmarLieder	"Rasismen som jag mÃ¶tte skrÃ¤mde mig" @hzhelena:s krÃ¶nika via @svtnyheter https://t.co/Yeq8a9HAnw #Brexit	23 Jun 2016, 07:30 - CEST	GÃ¶teborg	0	negative
mlb10384	https://t.co/WQT5ofxL17 #CitizenRadio (2016/06/23) Choose Your Own Adventure, NYPD treating minor infractions like crimes of the century, â€¦	23 Jun 2016, 07:30 - CEST	DE	0	negative
Pennywise1957	#PiosenkanadziÅ› https://t.co/YZubcdg7sX #Brexit	23 Jun 2016, 07:30 - CEST	Warszawa, Polska	0	NA

lucasferreiramf	Brexit Ã© nova tentativa britÃ¢nica de flexibilizar comunidade europeia https://t.co/6bDTFvqvfF	23 Jun 2016, 07:30 - CEST		0	positive
BetOnPolitics	BREXIT: THE UK DECIDES Get 4/1 Remain or 10/1 Leave when you join Betfair: âž¡ https://t.co/MK2RjOpEnm #EURef https://t.co/JjiiRfd1kD	23 Jun 2016, 07:30 - CEST	Odds for every candidate:	0	negative
NOGUESmarc	RT @beaudetstephane: #Brexit or not brexit ? In or out ? Telles sont les questions du jour ! Et la rÃ©ponse ne sera pas sans consÃ©quence surâ€¦	23 Jun 2016, 07:30 - CEST		1	negative
DavidXRobinson	#Brexit #VoteRemain #VoteRemain #StrongerIn https://t.co/Mduv8jDK5q	23 Jun 2016, 07:47 - CEST	Berkshire	0	negative
alvarofiucci1	RT @ZampieriChiara: A poche ore dal voto #Juncker avverte: "Fuori Ã¨ Fuori" #Euro burocrazia MINACCIA il popolo! #VoteLeave #Brexit httpsâ€¦	23 Jun 2016, 07:47 - CEST		10	positive
west_ham_mad1	RT @nobleart16: In a nutshell #brexit #VoteLeave https://t.co/ZA9McjG9D9	23 Jun 2016, 07:47 - CEST	Essex	1	positive
M_Reinsch	Song fÃ¼r den Tag.#brexit https://t.co/PViDdKE7WD	23 Jun 2016, 07:47 - CEST	Berlin	0	positive
tommoholland	RT @jimmydolittle1: Merkel comes out in support of Brexit VOTE LEAVE https://t.co/ySvW9Wunoa	23 Jun 2016, 07:47 - CEST		1	positive
UtterQuatsch	RT @davidschneider: Brexit latest. After John Barnes yesterday, 100 Nazi scientists have just rung Sky News to say Gove got it wrong.	23 Jun 2016, 07:47 - CEST	Manchester	35	negative
jeanclauro	RT @KimJongUnique: En cas de #Brexit, Hollande sera "inflexible" selon Macron. Comme avec LÃ©onarda, Martinez, les antifas... https://t.co/Gâ€¦	23 Jun 2016, 07:47 - CEST		13	neutral
reuben_padilla	If the UK votes against the EU then the PM most likely will resign. Voting starts right now in UK. #Brexit @AJENews https://t.co/M8KinVjBEu	23 Jun 2016, 07:47 - CEST		0	negative
Arissturtle	RT @ajplus: London's mayor Sadiq Khan crushed a recent #Brexit debate â€" while fasting. Mic drop, please. https://t.co/cN5jMmfvmQ	23 Jun 2016, 07:47 - CEST	Albuquerque, NM	391	negative
ruddiantosudraj	Pabrikan Otomotif Cemas Hadapi Brexit https://t.co/gMsiFgWksH #LoveU	23 Jun 2016, 07:47 - CEST	DKI Jakarta	0	negative
buell003	RT @MTaylorCanfield: The latest Global News Feed! https://t.co/oGHqw9M8Pn #brexit #euref	23 Jun 2016, 07:47 - CEST	Southern California	1	neutral
BrigitteGiorgio	Be careful! Le brexit fera dÃ©river la GB jusqu'au pÃ´le nord , et une pluie de haricots rouges s'abattra jusqu'Ã Ã©cÅ“urement #manipulation	23 Jun 2016, 07:47 - CEST		0	negative
SlatersonChris	RT @benkalcher: It won't be easy, hell it may even look like a mistake at first, but let's be brave, let's call June 23 independence day. #â€¦	23 Jun 2016, 07:47 - CEST	UNITED STATES	2	neutral

riteshzeenews	LIVE Leave or Remain: UK votes in EU referendum https://t.co/NAGMW1H7DM https://t.co/IXl0Pl82Fg	23 Jun 2016, 07:47 - CEST	New Delhi	0	negative
the_AndyG	I ain't even British, yet I'm nervous/excited to see the result of the Brexit vote. HUGE vote	23 Jun 2016, 07:47 - CEST	Chicago	0	negative
BitcoinMad	Bitcoin Trades Like Gold as Investors Seek Brexit Hedges: Chart https://t.co/oPig7UPVfs #bitcoin #crypto #news	23 Jun 2016, 07:47 - CEST	London	0	neutral
samiashahbaz04	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 07:47 - CEST		3189	positive
McShaffy	The whole brexit things was born by hates and racist British people!	23 Jun 2016, 08:04 - CEST	In and around the world	0	negative
nasosgrigo	RT @INTHENOWRT: #BREXIT and Donald Trump are actually the same thing via @ANOWRT https://t.co/rp1sPRJkhE	23 Jun 2016, 08:04 - CEST	ÎŸÏ€Î¿Ï… Î³Î±Î¼Î¿Ï‚ ÎºÎ±Î¹ Ï‡Î±Ï•Î±..	99	neutral
CamilleDbm	RT @Slatefr: Â«RemainÂ»Â ou Â«LeaveÂ», l'Europe va devoir se bouger https://t.co/SbpS0vAoH9	23 Jun 2016, 08:04 - CEST		3	neutral
RealDonJohnston	RT @LimaCharlieNews: It's #Brexit time. #ChooseWisely Laughs courtesy of #JohnOliver @LastWeekTonight https://t.co/iejcrlECtY	23 Jun 2016, 08:04 - CEST	Jersey City, NJ	5	positive
MauriceMeer	Inwoners zullen verdeeld zijn, ongeacht de uitslag. To brexit or not to brexit: wat je moet weten /via @NOS https://t.co/yhECtKcd5o	23 Jun 2016, 08:04 - CEST	Roelofarendsveen	0	negative
Jesucri76657946	RT @IndigndeVerdad: #Tips Remain 49% Leave 51% #VoteLeave #Brexit	23 Jun 2016, 08:04 - CEST		1	positive
billyboymc1975	PLEASE PLEASE PLEASE VOTE TODAY DONT SAY YOUR VOTE TO LEAVE AND DONT VOTE MAKE THE EFFORT TO SAVE THE UK #BREXIT https://t.co/aL3iCcsFyZ	23 Jun 2016, 08:04 - CEST	EC1 BOY!!! B-A-B	0	positive
british_fascist	All those in EU top jobs are Jews or hard line left/right Jewish servants. #Brexit #VoteLeave https://t.co/DLwxezVZpi	23 Jun 2016, 08:04 - CEST	England, United Kingdom	0	positive
answers_news	EUé›¢è„±ã□®æ˜¯é□žã‚’å•□ã□†ã‚¤ã‚®ãƒªã‚¹ã□®å›½æ°‘æŠ•ç¥¨ã□Œå§‹ã□¾ã‚Šã□¾ã□—ã□Ÿã€‚è£½è–¬æ¥-ç•Œã□¸ã□®å½±éŸ¿ã‚’ã□¾ã□¨ã‚□ã□¦ã□‚ã‚Šã□¾ã□™ã€‚ ã€ŒBrexitã€□ã□®å½±ã€□è£½è–¬æ¥-ç•Œã□«ã‚‚â€¦EFPIAã□Œæ®‹ç•™è¨´ã□ˆã€€è‹±å›½ã□®EUé›¢è„±ã•§æ¥ç•Œã□«ä½•ã□Œèµ·ã□“ã‚‹ https://t.co/6ifT8Aca2t #AnswersNews	23 Jun 2016, 08:04 - CEST		0	neutral

RecordingLight	https://t.co/r1C5Z5goAd	23 Jun 2016, 08:04 - CEST	the sound booth	0	NA
AdNewspapers	RT @News_In_Essex: EU referendum 2016 live: Essex voters head to polling stations to...: After months of campaignin... https://t.co/r26IcvMâ€¦	23 Jun 2016, 08:04 - CEST	United Kingdom	1	negative
PRI	'Brexit' supporters are appealing to the UK's curry lovers to win Thursday's referendum. https://t.co/ctgDV4H4rA https://t.co/vtE41sbHwz	23 Jun 2016, 08:04 - CEST		0	positive
Maxete26	RT @JuanLabordah: https://t.co/kcfkPGsARD CaÃdas mercados financieros Ãºltimas semanas no sÃ³lo Brexit: mercados sobrevalorados, inflados porâ€¦	23 Jun 2016, 08:04 - CEST		3	negative
mattiewietze	We doen even een #Brexit! Tot 09.00 uur geen Adele, One Direction, Ed Sheeran, Ellie Goulding, Coldplay, Jessie J... https://t.co/YKquSZSXG4	23 Jun 2016, 08:04 - CEST	Nederland	0	neutral
blvlaw	Brexiteer films himself 'illegally' crossing Channel with migrants https://t.co/J9kDhK1Qjl	23 Jun 2016, 08:04 - CEST	West Midlands/Worcestershire	0	negative
AliLeonardMC	#UK friends .... #Brexit or Bremain ? The financial folk say no ! What do you say & why ?	23 Jun 2016, 08:04 - CEST	NZ	0	negative
sundaybusiness	#Brexit: Today voters have a chance to reject the most heinous campaign ever run in Britain, writes @susanokeeffe https://t.co/QZE86ifeO9	23 Jun 2016, 08:04 - CEST	Dublin city, Ireland	0	negative
dft	Column @martinvisser 'Grootschalige Britse chantage van bevolking Europa. Laat ze vertrekken' https://t.co/EoWjfIbnAq #Brexit	23 Jun 2016, 08:04 - CEST		0	negative
up_tanja	#brexitÃ¤Ã¤nestyspÃ¤ivÃ¤. Olin viime viikolla Lontoossa ja aihe alkoi kiinnostaa, koska se tunki kaikkialta. Toivon, etteivÃ¤t irtaudu.	23 Jun 2016, 08:04 - CEST	Helsinki	0	negative
Binnsy_46	RT @1u4m4: 80% of Americans believe Britain & the world would have a better future with BREXIT https://t.co/u4Nwng5Xts https://t.co/jbzI7eâ€¦	23 Jun 2016, 08:04 - CEST	Lincolnshire, England	48	positive
mr_andrey63	RT @lentaruofficial: ÐŸÐ¾Ñ‡ÐµÐ¼Ñƒ Brexit Ñ⍰Ð¿Ð°Ñ⍰ÐµÑ, Ñ⍰ÐºÐ¾Ð½Ð¾Ð¼Ð¸ÐºÑƒ ÐµÐ´Ð¸Ð½Ð¾Ð¹ Ð•Ð²Ñ€Ð¾Ð¿Ñ‹: https://t.co/E672hk3qcX https://t.co/BsFLM7M9sC	23 Jun 2016, 08:22 - CEST		6	negative
charlotte101987	RT @LisaHenegauwen: #EU laws strip Britain of its Magna Carta rights, don't let EUrulers take liberties with history #voteleave #brexit htâ€¦	23 Jun 2016, 08:22 - CEST		6	positive
VonOberg	#Brexit Himmel, Arsch und Zwirn! Ich fÃ¤nde es sehr schade wenn sie austreten, aber wenn sind sie selbst schuld!	23 Jun 2016, 08:22 - CEST	Soest, Deutschland	0	negative
edwatkinson	RT @britishbullybee: Demolished: The four big lies told by the Remain campaign https://t.co/ihNroJSkmy	23 Jun 2016, 08:22 - CEST		15	negative

SaraRtweetsEd	RT @USATODAY: #BREAKING Voting begins on 'Brexit' referendum: Will the UK stay in the EU? https://t.co/hbRkt4aaRI	23 Jun 2016, 08:22 - CEST	Washington, DC	15	negative
Super__Cyan	@PaulbernalUK has anyone even spoke about what #Brexit would mean for our surveillance laws?	23 Jun 2016, 08:22 - CEST		0	negative
ParisFranceNews	Nigel Farage refuses to apologise for 'Breaking Point' poster in final pitch to voters https://t.co/7LNh5lIHQO #GoogleAlerts	23 Jun 2016, 08:22 - CEST	Paris	0	neutral
SebShearer	Really interesting coverage on Sky 510 @cctvnews too. @SkyNews @BBCNews @euronews #EURef #EUreferendum #brexit #VoteLeave	23 Jun 2016, 08:22 - CEST		0	positive
France24_fr	Brexit : les Britanniques se prononcent sur leur maintien dans l'UE https://t.co/rc9Jeo3CND https://t.co/H9oayPf5rP	23 Jun 2016, 08:22 - CEST	Paris	0	neutral
LSMusic2020	RT @ChargerGreg2: #Brexit https://t.co/hecOtMe2Ir	23 Jun 2016, 08:22 - CEST	United States	5	neutral
riverajanessa	ÐšÑ€ÐµÐ¼Ð»ÑŒ Ð¿Ñ€Ð¾ÐºÐ¾Ð¼Ð¼ÐµÐ½Ñ‚Ð¸Ñ€Ð¾Ð²Ð°Ð» Ñ•Ð»Ð¾Ð²Ð° ÐšÑ⍰Ð¼ÐµÑ€Ð¾Ð½Ð° Ð¾Ð± Ð¸Ð½Ñ‚ÐµÑ€ÐµÑ•Ðµ ÐŸÑƒÑ‚Ð¸Ð½Ð° Ðº Brexit https://t.co/Q9EvSdHCN9	23 Jun 2016, 08:22 - CEST	ÐœÐ¾Ñ•ÐºÐ²Ð°, Ð Ð¾Ñ•Ñ•Ð¸Ñ•	0	negative
SpaceKwest	RT @DavidJo52951945: RT I was at the polling booth for 7am to vote to LEAVE the EU after years of waiting (use a pen) #Brexit #iVoted httpâ€¦	23 Jun 2016, 08:22 - CEST	ConciÃ«rgeloge/bezemkast	83	positive
never_everS21	Will you stay or will you leave? That's the question. Good morning, Britain! #Brexit	23 Jun 2016, 08:22 - CEST		0	positive
Maz_zaroth	RT @ianrmillard: "Major leak from Brussels reveals NHS will be â€˜KILLED OFFâ€™ if Britain remains in the EU"#VoteLeave #EUref #r4today httpsâ€¦	23 Jun 2016, 08:22 - CEST		9	neutral
JESS_AR_BS	A snapshot of the VERY balanced BREXIT research KS3 students have undertaken in the build up to this historic day. https://t.co/DyKASeXaZv	23 Jun 2016, 08:22 - CEST		0	positive
Master2001_3	RT @TristeMietitore: Moneta propria, unitÃ di misura, guida diversa: onestamente non ho mai percepito la Gran Bretagna dentro l'UE. #Brexit	23 Jun 2016, 08:22 - CEST	Marche - Italy	6	neutral
GNOpinion	Gulf News lead editorial: #Britain should vote to stay in the #EU https://t.co/EVnioBMA6F #EUreferendum #Brexit	23 Jun 2016, 08:22 - CEST		0	neutral
htntp_	feeling british today! #brexit	23 Jun 2016, 08:22 - CEST	Nordrhein-Westfalen	0	negative
SantosSainzM	RT @FR_Conversation: #Brexit, une affaire Dreyfus Ã l'anglaise, par Benjamin BÃ¢cle #EUref https://t.co/vQgwBJ1vOj https://t.co/J76BSHNaFq	23 Jun 2016, 08:39 - CEST	Bordeaux, France	1	neutral
e_sud_b	RT @trendincontent: EU referendum: Final ComRes poll shows large lead for Remain #Brexit https://t.co/xx45wkBi0v https://t.co/QEXIp22aGR	23 Jun 2016, 08:39 - CEST	Alabama	10	negative
SgtLovejoy	RT @Reuters_co_jp: é›¢è„± ã⍰‹æ®‹ç•™ã⍰‹ã€‚è‹±å›½æ°‘æŠ•ç¥¨ã⍰Œã⍰„ã‚ˆã⍰„ã‚ˆé	23 Jun 2016, 08:39 - CEST	ãƒ•ãƒ©ãƒ³ãƒ€ãƒ¼	104	negative

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dsonpolitics	Vote duly cast for #Leave let's take this chance! #EUref #Brexit #BeLeave #VoteLeave	23 Jun 2016, 08:39 - CEST	Oxford	0	positive
seputartradings	OBLIGASI FR56 Kembali Hijau Saat Pasar Tunggu Referendum Brexit https://t.co/8iWq1dHRfT	23 Jun 2016, 08:39 - CEST	Solo	0	neutral
tomn94	RT @yannthompson: #Brexit Il est bientÃ´t 7h ici, ouverture des bureaux de vote dans 10 minutes. Fermeture 15h plus tard ! https://t.co/w5Acâ€¦	23 Jun 2016, 08:39 - CEST	Pawnee - Scranton France	10	negative
WomenDefyUKIP	RT @sueveneer: Jeff Mitchell's best photograph: â€˜These people have been betrayed by Ukipâ€™ https://t.co/SM7wSsmevs	23 Jun 2016, 08:39 - CEST		3	neutral
hughriminton	Can you pass the Brexit test? I must have been payng attention because I got 8 out of 8 correct. https://t.co/FrVZzc2c3w	23 Jun 2016, 08:39 - CEST	Sydney, Australia	0	negative
who2stu	RT @LisaHenegauwen: The #EU is a sinking ship what we have to abandon Reclaim your sovereignty before it's too late! #nexit #brexit https:â€¦	23 Jun 2016, 08:39 - CEST		44	positive
DemoGrazzi	RT @Trev_Forrester: Save these Islands from domination by a foreign power #Brexit https://t.co/Ffemvzyjkg	23 Jun 2016, 08:39 - CEST		127	neutral
mrshazellburger	RT @DailyMailUK: The four big lies told by the Remain campaign https://t.co/9U4JgWH8XU https://t.co/yFj05jisbz	23 Jun 2016, 08:39 - CEST		49	negative
MootjeNadal	#Brexit	23 Jun 2016, 08:39 - CEST	Manchester, England	0	negative
ES_investigator	RT @busybuk: Warning when you go to Vote on Thursday take either a permanent marker or a Pen with you to Vote in this Referendum PLEASE RETâ€¦	23 Jun 2016, 08:39 - CEST	In your head	167	negative
emilyr_williams	genuinely scared #Brexit might win	23 Jun 2016, 08:39 - CEST	London	0	negative
Seun731	How is it going? #BREXIT?	23 Jun 2016, 08:39 - CEST	Nigeria.	0	negative
ukipsalford	RT @LeaveEUOfficial: Tomorrow's @pestononsunday features @PennyMordauntMP, @Nigel_Farage & @SteveHiltonx making the case for Brexit. https:â€¦	23 Jun 2016, 08:39 - CEST	pendlebury salford â˜º	130	positive
Think_Blue_Sky	I wish to live in a worldwide street, not a european culdesac #Brexit	23 Jun 2016, 08:39 - CEST	London	0	negative
FearnJenni	RT @DavidJo52951945: EU depend on the UK market, trade deficit was Â£23 billion in the EU's favour JanMarch 2016.WE WILL GET A TRADE DEAL hâ€¦	23 Jun 2016, 08:39 - CEST	Monmouth	38	positive

jice61	RT @LOrientLeJour: Donald #Trump se rend en #Ecosse en plein vote sur le #Brexit https://t.co/rEmR2xtcj7	23 Jun 2016, 08:39 - CEST	France	1	positive
joaquimsacouto	@xismaisxis sÃ³ de ouvir isto eu voto no brexit	23 Jun 2016, 08:39 - CEST	Porto, Portugal	0	negative
bmcnaughton1	RT @offensivecuppy: EU wants to censor the Internet again? #Brexit #VoteLeave #EUReferendum #BBCDebate https://t.co/kT2A00Lmed	23 Jun 2016, 08:56 - CEST	Ontario, Canada	2	positive
delalande72	RT @franceinfo: EN DIRECT #brexit or not #brexit, dÃ©bat entre les dÃ©putÃ©s europÃ©ens Nicolas Bay (FN) et Yannick Jadot (EELV) Ã 7h45 sur Fâ€¦	23 Jun 2016, 08:56 - CEST	rp et sarthe, nimes	9	neutral
josedeynes	#Brexit #bremain #brexit poll #leave #remain https://t.co/2HntCoVADP	23 Jun 2016, 08:56 - CEST	Isabela, PR	0	neutral
sam_kirke	RT @V_of_Europe: Farageâ€™s final rallying call: â€˜Itâ€™s us versus the Establishment go and vote for Britain' https://t.co/LfRgbPr9PF	23 Jun 2016, 08:56 - CEST		100	neutral
capariwar	Brexit: EU referendum voting gets underway inÂ UK https://t.co/rh5CjxrbI9	23 Jun 2016, 08:56 - CEST		0	neutral
svagdis	RT @rgenci57: You know, you want it! Happy #Leave #Brexit ers! Tomorrow this time you'll celebrate! https://t.co/S1KSnFJzlO	23 Jun 2016, 08:56 - CEST		7	positive
HenkPuffelmans	Moeten we bij een #brexit straks ook balen thee in het Kanaal gooien?	23 Jun 2016, 08:56 - CEST	Harderwijk	0	negative
Jack_hades1	@infomex2012 Resumen dedicado a Nochixtlan y el Ãºltimo dÃa antes del BREXIT/BREMAIN: Este es un breve resumen... https://t.co/NXNHUhvKft	23 Jun 2016, 08:56 - CEST	El tartaro	0	negative
TeresaBlckbrn	RT @theordinaryman2: A lastminute plea: #voteLeave and help change the course of history #iVoted #LeaveEU #Brexit #remain #INorOUT httpsâ€¦	23 Jun 2016, 08:56 - CEST	South England, near the sea	43	negative
drewwhufc	RT @WantEnglandBack: Julia Hartley Brewer You don't need to trust politicians to vote for Brexit. Just trust yourself @telegraphnews httâ€¦	23 Jun 2016, 08:56 - CEST		19	positive
Novini1	#Ð□Ð½Ð°Ð»Ð¸Ð·Ð¸Ð¸ÐºÐ¾Ð¼ÐµÐ½Ñ‚Ð°Ñ€Ð¸ Brexit ÐºÐ°ÐºÐ²Ð¸ Ñ‰Ðµ Ñ•Ð° Ð¿Ð¾Ñ□Ð»ÐµÐ´Ñ□Ñ‚Ð²Ð¸Ñ□Ñ‚Ð° Ð½Ðµ Ñ•Ð°Ð¼Ð¾ Ð·Ð° Ð’ÐµÐ»Ð¸ÐºÐ¾Ð±Ñ€Ð¸Ñ‚Ð°Ð½Ð¸Ñ• https://t.co/zqeNvXEbNG	23 Jun 2016, 08:56 - CEST		0	negative
IRVING_kira	#EL OTRO 5ANTUARIO: Resumen dedicado a Nochixtlan y el Ãºltimo dÃa antes del BREXIT/BREMAIN: Este es un breve ... https://t.co/ReejyrmTGO	23 Jun 2016, 08:56 - CEST	distrito federal	0	negative

gordie_ross	DonÂ´t leave, I love E.U. #VoteRemain #EUref #Brexit #BorisJohnson #NicolaSturgeon #NigelFarage #Guardian #DailyMail	23 Jun 2016, 08:56 - CEST		0	neutral
AdrianMulholla1	RT @UKIPNFKN: UK would be bonkers to leave EU, says Michael Moore #StrongerIN #VoteIN #EUref #INorOUT #INTogether #Brexit https://t.co/wiâ€¦	23 Jun 2016, 08:56 - CEST		3	neutral
No_No_Coco	Because infographics really do hold the key to everything...last minute #Brexit summary for you. #VoteRemain https://t.co/iiJqRJQj6L	23 Jun 2016, 08:56 - CEST	London	0	negative
FredSimonEU	So what next? After Brexit: Roadmap for a leap in the dark @EurActiv https://t.co/6ztjJVHLsy	23 Jun 2016, 08:56 - CEST	Brussels, Belgium	0	negative
thatjordyshea	Everyone's entitled to their own opinion on brexit but why does the leave support look like a bad season of celeb big brother? #EUref	23 Jun 2016, 08:56 - CEST		0	positive
MrtnMrt	RT @marcosalvati: Nessun uomo Ã¨ un'isola, completo in se stesso; ogni uomo Ã¨ un pezzo del continente, una parte del tutto. (J. Donne 1624)â€¦	23 Jun 2016, 08:56 - CEST		11	neutral
Jackandstella	The Brexit polls are too close to call, which means the UK will vote â€œremainâ€• https://t.co/prIuqluUTd via @qz	23 Jun 2016, 08:56 - CEST	Australia	1	negative
ex941petti	RT @IndiaNotes: tradebizz india1: https://t.co/FZTU5P9Fwk Sensex, Nifty open flat ahead of Brexit vote; Tata Motors gains 23 June 2016	23 Jun 2016, 08:56 - CEST	tawau	42	neutral
rosswilliams0	@vladsten @kjimenezgarcia if UK votes Brexit get your spare room ready cause I'm coming to live with you	23 Jun 2016, 09:13 - CEST	London	0	positive
revistacostabl1	RT @OsreOscar: #LACAFETERAPapaCuentameOtraVez Da gusto ver los medios como denuncian los corruptos, antes Gibraltar ahora Brexit. https://tâ€¦	23 Jun 2016, 09:13 - CEST		1	positive
YarboughBur	RT @nytimesworld: On Twitter, even cats (and dogs) are getting into the 'Brexit' debate. https://t.co/BEUi3nrkZI https://t.co/C7dNdNJezm	23 Jun 2016, 09:13 - CEST		37	positive
mark007x007	RT @politicsHour: Should the UK remain a member of the EU or leave the EU? #Brexit #EUReferendum	23 Jun 2016, 09:13 - CEST	South West, England	8	neutral
SunTzuPing	RT @TheSun: Make history believe in yourself & our countryâ€™s greatness vote LEAVE https://t.co/UtgHNXbGTw #euref https://t.co/QnW6AcOzmY	23 Jun 2016, 09:13 - CEST	Santa Barbara California	220	positive
Dr_Lucie	RT @JennyRohn: In case you're still undecided @Stephen_Curry on Blood and Brexit https://t.co/impJa1WWFPâ€¦ @guardiansciblog #EUreferendum	23 Jun 2016, 09:13 - CEST	UK	2	negative

abacusnemo	RT @V_of_Europe: Cameron redfaced after German official says Brussels WILL trade with Britain after Brexit #iVoted https://t.co/x4yOrU0mbg	23 Jun 2016, 09:13 - CEST	South East England.	135	neutral
BetchavaBisbis	ÎŸ Î¤Ï⍰Î±Î¼Ï€ Î⍰Ï‡ÎµÏ„Î±Î¹ ÏƒÏ„Î·Î½ Î•Ï…Ï⍰ÏŽÏ€Î· Î³Î¹Î± Ï„Î¿ #Brexit. Î'Ï, ÏƒÏ„Î±Î¼Î±Ï„Î®ÏƒÎ¿Ï…Î¼Îµ Î±Ï…Ï„ÏŒÎ½ ÎºÎ±Î¹ Ï„Î¿Ï…Ï, Ï†Î¯Î»Î¿Ï…Ï, Ï„Î¿Ï… Î¼Îµ ÎÎ½Î± Ï†Î¹Î»Î¯: #LoveEurope https://t.co/1SybQuKPxm	23 Jun 2016, 09:13 - CEST	Î™Î»Î¹Î¿Î½,Î•Î»Î»Î±Ï,	0	positive
rigadude	RT @POLITICOEurope: 7 signs that #Brexit is really happening https://t.co/iqlB4AWGQp https://t.co/0pWVQvLTOV	23 Jun 2016, 09:13 - CEST	here	8	negative
andyblacknell	RT @Christianitymag: 12 perfect songs for your #Brexit or #Bremain worship setlist https://t.co/NqYcVw52H5 #EUreferendum https://t.co/GoBuâ€¦	23 Jun 2016, 09:13 - CEST	London	16	negative
SegnalazioniSS	RT @pin_upicierno: Bruxelles minaccia gli inglesi... "Se uscite dall'Europa starete molto meglio!" #Brexit	23 Jun 2016, 09:13 - CEST	Sassari, Sardegna	1	negative
the_stockking	Everything You Need To Know About Brexit: Hello Traders, We have been getting lots ofâ€¦ https://t.co/cKg0MZim8y	23 Jun 2016, 09:13 - CEST	Gurgaon	0	positive
jesabfm	RT @ActualidadRT: Comienza la votaciÃ³n en el Reino Unido para decidir si seguirÃ¡ o no siendo miembro de la UE https://t.co/6HORXT7Upe httpsâ€¦	23 Jun 2016, 09:13 - CEST	Spain	48	neutral
trxtrx1	RT @afderas: quindi per #taddei la #brexit Ã¨ come il #referendum di ottobre... che si perda o si vinca Ã¨ uguale, restiamo #omnibusla7	23 Jun 2016, 09:13 - CEST		1	negative
ferendus	Si el Brexit fuera en EspaÃ±a en la papeleta de AragÃ³n se verÃa "sÃ, pero pol'haba" y "hemos de salir". Para los foranos: es no y sÃ.	23 Jun 2016, 09:13 - CEST	http://about.me/ferendus	0	neutral
Erco94	RT @p_corradini: E oggi la Gran Bretagna potrebbe sancire la fine della UE. Loro che hanno sempre fatto come c...o gli pareva. #Brexit	23 Jun 2016, 09:13 - CEST		1	negative
paultimperley	RT @DanHannanMEP: My three minute #Brexit pitch, via @CNN. https://t.co/lVvbXTv904	23 Jun 2016, 09:13 - CEST		142	neutral
karmel_sianturi	https://t.co/qKv0UKZJWN	23 Jun 2016, 09:13 - CEST	Medan Kota, Indonesia	0	NA
edwards_marie	RT @McGiff: Right, polls are open, letâ€™s GO! #Brexit #VoteLeave @pete_rai https://t.co/TapGtnmp1H	23 Jun 2016, 09:13 - CEST	Hampshire	58	positive
blackapollo	My eightyearold thinks he could be deported if we vote for Brexit https://t.co/bjZyl48HX4	23 Jun 2016, 09:13 - CEST	Cambridge, UK	0	negative

mwengway	RT @V_of_Europe: Brexit WON'T spark trade war say GermansÂ https://t.co/1OyQG3Iudv	23 Jun 2016, 09:30 - CEST		94	negative
ibngibril	RT @rorybroomfield: Let's make the #UK free again! #VoteLeave #Brexit #EURef	23 Jun 2016, 09:30 - CEST	Allahuack Bar	6	positive
CrustyDinosaur	RT @westerndefence: Today, we get to choose again whether we want to be free. #Brexit https://t.co/u1g8QLqb8B	23 Jun 2016, 09:30 - CEST	New Malden Surrey	2	positive
FundStrategy	Exclusive: Brexit fears? UK equity managers cut UK stocks to lowest in three years https://t.co/FW2VPxV9at	23 Jun 2016, 09:30 - CEST	London, UK	0	negative
JeroenMil	RT @ooohouchburn: Today is the last chance the UK will get to fly free from the fascist European Union. #Brexit, Believe #VoteLeave https:/â€¦	23 Jun 2016, 09:30 - CEST		13	positive
OhSoNicolle	RT @JessEspinX: don't be fooled, Brexit is NOT the answer. #VOTEREMAIN #VOTEIN https://t.co/6K1EAZE0ob	23 Jun 2016, 09:30 - CEST		1	negative
Grassy_Knoll	RT @onetokebloke: Done ! Have you #Brexit https://t.co/al0bTCsi28	23 Jun 2016, 09:30 - CEST	A food tube in Sector 7-G	81	positive
denizen42	RT @efarpax1: Î¤Î¿ Brexit Î¸Î± ÎºÎ±Ï„ÎÏƒÏ„Ï⍰ÎµÏ†Îµ Ï„Î·Î½ Î‘Î³Î³Î»Î¯Î± Î•Î½ÏŽ Ï„Î¿ Grexit, Î¸Î± ÎºÎ±Ï„ÎÏƒÏ„Ï•ÎµÏ†Îµ Ï„Î·Î½ Î•Ï…Ï⍰ÏŽÏ€Î· #Syriza_ malÃ¡kes	23 Jun 2016, 09:30 - CEST		9	negative
mark24823687	RT @Gjon777: Jacob ReesMogg on Osborne's Brexit Budget 15062016: https://t.co/YUY78VVcHV via @YouTube	23 Jun 2016, 09:30 - CEST	UK Hull	23	neutral
sadiejarrett	RT @BenjaminJames15: Funny how many Welsh people I see posting #TogetherStronger when it comes to football yet they dont see that for the bâ€¦	23 Jun 2016, 09:30 - CEST	Cardiff, Wales	2	positive
terraceblue1886	#VoteLeave #Brexit https://t.co/xzBRwctdQl	23 Jun 2016, 09:30 - CEST		0	positive
SputnikNews_SK	#Brexit #Brexit#Brexit #Brexit#Brexit #Brexit#Brexit #Brexit#Brexit #Brexit#Brexit #Brexit#Brexit #Brexit#Brexit #Brexit#Brexit #Brexit	23 Jun 2016, 09:30 - CEST		0	NA
BubbleTrends	Trending News about https://t.co/7mFmkVGSKU Brexit Vote #BubbleTrends	23 Jun 2016, 09:30 - CEST		0	positive
NPORadio1	To brexit or not to #brexit? #NPORadio1 live vanuit Londen met @chrkijne en @jorisluyendijk: https://t.co/DnLQySf7hf https://t.co/iAMe0msm7V	23 Jun 2016, 09:30 - CEST	Hilversum, The Netherlands	0	neutral
jobruma	Del Brexit i d&#8217;altres qÃ¼estions no menors https://t.co/STbLQPrsbj	23 Jun 2016, 09:30 - CEST	Sabadell	0	negative
emucientes	Para no perderse nada del referÃ©ndum britÃ¡nico, el envivo de @elmundoes https://t.co/Xzazg366JU @maria__hdez @anabarrio	23 Jun 2016, 09:30 - CEST		0	negative
ThibautMathieu	#Brexit or not #Brexit that is the question.	23 Jun 2016, 09:30 - CEST	Versailles	0	neutral

stefanmschultz	RT @BoeckingD: Remain or leave? In UBahnWaggon 96418 ist das Stimmungsbild zum #Brexit eindeutig: https://t.co/6ZijDl0XR9	23 Jun 2016, 09:30 - CEST	38.446631,-9.102796	12	positive
FinanzLinks	â–¶ Raiffeisen: BrexitReferendum, Solar City, Tesla Motors und Staatsanleihen im Blickpunkt: Dasâ€¦ https://t.co/6TxtrN1dMV #News â⍰š 4INVESTORS	23 Jun 2016, 09:30 - CEST		0	neutral
DavidTrevor10	Cost of living will FALL once we #BREXIT https://t.co/ikRlmaHhR1	23 Jun 2016, 09:30 - CEST		0	neutral
bcomininvisible	RT @OwenJones84: If Brexit happens, we will face the fights of our lives and we have to prepare. My video: https://t.co/2srq39cOLw https:â€¦	23 Jun 2016, 09:47 - CEST	In my bed, tweeting	1546	negative
andyknox2	RT @V_of_Europe: Cameron redfaced after German official says Brussels WILL trade with Britain after Brexit #iVoted https://t.co/x4yOrU0mbg	23 Jun 2016, 09:47 - CEST	uk	267	neutral
iphone_mr	RT @DavidJo52951945: RT I was at the polling booth for 7am to vote to LEAVE the EU after years of waiting (use a pen) #Brexit #iVoted httpâ€¦	23 Jun 2016, 09:47 - CEST	The End of the world	380	positive
wendyeknapp	RT @Multi_Ling_Mat: Hold your tongues: why #language learners fear a vote for #Brexit https://t.co/J3cMhAbfxE #eureferendum #bilingualism #â€¦	23 Jun 2016, 09:47 - CEST		5	negative
GraduatesChroni	In gran Bretagna, nella giornata di oggi, si voterÃ il famoso Brexit, ovvero il Referendum per restare o meno... https://t.co/hOGIKn1Vzk	23 Jun 2016, 09:47 - CEST		0	neutral
awyliu	RT @LouiseMensch: The Morning Star's socialist editorial for Vote Leave and #Brexit https://t.co/lkfRj2vjgj	23 Jun 2016, 09:47 - CEST	London, UK	7	positive
_MarketViews	FTSE 100 breaks 6,300 and pound hits 2016 high as Brexit vote gets underway https://t.co/QTY2i4TrQm @Telegraph	23 Jun 2016, 09:47 - CEST	London	0	positive
chiara_salvi	Mi si nota di piÃ¹ se resto ma sto in disparte, o se me ne vado? #Brexit	23 Jun 2016, 09:47 - CEST		0	negative
Larysaaa_	@ArtKillwater Niemcy i tak dyktujÄ… wszystkim warunki a #Brexit to byÅ‚by zimny prysznic. ByÄ‡ moÅ¼e inne kraje teÅ¼ zacznÄ… wychodziÄ‡ jeÅ›li UK	23 Jun 2016, 09:47 - CEST		0	negative
Markiswin	RT @madeupstats: This account's been quiet for a while, but due to the fact that the Brexit campaign have stolen a lot of our material, weâ€¦	23 Jun 2016, 09:47 - CEST	Manchester, UK	68	negative
GordonGekko_101	RT @WSJ: Brexit vote: what to watch as the U.K. goes to the polls https://t.co/NHPgTciXvv	23 Jun 2016, 09:47 - CEST	Wall Street	11	neutral
Wealth_Vertex_	Pound, euro higher ahead of Brexit vote #forextrader #forexnew #trading #WealthVertex https://t.co/IU4taPsJvh	23 Jun 2016, 09:47 - CEST	Singapore	0	positive
SueIngSimmons	What does this ACTUAL MEP say about Brexit. A MUST watch especially if you're still undecided. https://t.co/4p6YfoCrpW	23 Jun 2016, 09:47 - CEST	High Wycombe, UK	0	negative

MaryKapadia	RT @theordinaryman2: The #EU bans the word #Brexit ? #EUReferendum #LeaveEU #VoteLeave #StrongerIn #InOrOut #LabourInForBritain https://tâ€¦	23 Jun 2016, 09:47 - CEST	Leicester, England	134	negative
chances999	RT @labourleave: The polls are open! Get out and use your vote to help us create an independent Britain. #Brexit #EUref https://t.co/h8EeUAâ€¦	23 Jun 2016, 09:47 - CEST	ONTHEREGISTER	184	positive
MrScopolamin	RT @DavidJo52951945: YOUR COUNTRY NEEDS YOU TO VOTE LEAVE TODAY #Brexit https://t.co/00t9A7nVLd	23 Jun 2016, 09:47 - CEST		217	positive
highgatealex	RT @DavidJo52951945: RT if you have voted to LEAVE the EU today #iVoted #Brexit #Freedom https://t.co/a5JkBNjKwE	23 Jun 2016, 09:47 - CEST	London	423	positive
BMouthPR	Rain and thunder in #Brexit land... ...Don't let my people go! #StrongerIn. #Remain.	23 Jun 2016, 09:47 - CEST	United Kingdom	0	negative
vgul	RT @axelheitmueller: Whatever your views on #Brexit the biggest sin you can commit today is not to vote. Democracy is fragile and a gift.	23 Jun 2016, 09:47 - CEST	London	1	positive
PierToso	Dear UK, without the "Ever closer union" you can go away, with no regrets. #Brexit #BrexitOrNot	23 Jun 2016, 09:47 - CEST	Fidenza, Italy	0	negative
KrangnesLars	RT @Queen_UK: David Beckham is backing remain. This is mainly because he can't spell Brexit. #EUref	23 Jun 2016, 10:04 - CEST	Stockholm, Sverige	851	negative
EconomyWrld	Brexit vote 'would mean a UK recession' https://t.co/WqZqV032Qj https://t.co/eaJgyqucZ4	23 Jun 2016, 10:04 - CEST	United States	0	negative
WOB_BLATT	"Brexit"Gefahr verunsichert fast jedes zweite deutsche Unternehmen https://t.co/rbcucGFv7Q	23 Jun 2016, 10:04 - CEST	Wolfsburg	0	negative
Monalisazelf	RT @florianeder: Sorry und gute Reise: Mit "Respekt und Bedauern", so wÃ¼rde die EU auf den #Brexit reagieren. https://t.co/WWClKi6MzD	23 Jun 2016, 10:04 - CEST		2	negative
catarinagallo	RT @Alasdair91: #EURef #Brexit UK "expats" moaning about immigrants. OH THE IRONY! Got a cheek to moan about "changing" our ways. https:â€¦	23 Jun 2016, 10:04 - CEST	Netherlands	3	negative
UkipRob	RT @WAFEFuk: #BREXIT DAY @BRESU_ #WAFEF UK https://t.co/TTafxEotuU	23 Jun 2016, 10:04 - CEST		3	neutral
TGuerreroBlanco	RT @plalanda_II: DimensiÃ³n de la inversiÃ³n bruta de UK en EspaÃ±a y stock de empleo correspondiente #Brexit (Elaborado por SIfdi) https://â€¦	23 Jun 2016, 10:04 - CEST	Madrid (Spain)	3	neutral
velvetsilk	Brexit have grabbed all the headlines and stooped despicably low. A vote for Leave is aligning with extremists, with people without a plan.	23 Jun 2016, 10:04 - CEST	England, United Kingdom	0	positive

vivianstarrrr	RT @theordinaryman2: Its your decision ? Like for #IN Retweet for #OUT #EURef #VoteLeave #Brexit #VoteRemain #InOrOut #Labour #VoteOUT htâ€¦	23 Jun 2016, 10:04 - CEST		44	positive
NewsSprinkles	RT @Independent: When the EU referendum result will be announced https://t.co/9kWnoH4NG4	23 Jun 2016, 10:04 - CEST	Winterfell	14	neutral
StevenDawsonSD	#Brexit or not, your business must be prepared for any possible outcome https://t.co/4Ibv84nQqx #OracleEmp #Intel	23 Jun 2016, 10:04 - CEST	Frankfurt, Germany	0	neutral
DomCalderon	#dc â€˜Brexitâ€™: las Ãºltimas encuestas y las claves del referÃ©ndum https://t.co/tWZ5DhdLeP	23 Jun 2016, 10:04 - CEST	Costa Rica	0	negative
teddybearisms	RT @Steven_mala: Jeremy Corbyn makes the case for Brexit EU referendum 2016 https://t.co/UgaTHzfvQa via @YouTube	23 Jun 2016, 10:04 - CEST	at the pub, now &$#% off.	2	neutral
OnVista_News	Der Freitag nach dem #BrexitReferendum dÃ¼rfte kein normaler Handelstag werden nicht nur fÃ¼r BÃ¶rsianer in London https://t.co/qXzF8TPrVs	23 Jun 2016, 10:04 - CEST	Frankfurt am Main, Germany	0	negative
_lethabo17	More than 40% of fortune 500 companies were started by immigrants and children of immigrants. Amazing stat hey . #Brexit	23 Jun 2016, 10:04 - CEST	Pyongyang, North Korea	0	positive
dioXyn	Bundesregierung vor dem Brexit: Klappe zu und durch: [taz.de] Berlin hat Angst davor, dass die Briten die EUâ€¦ https://t.co/ARcihuBCim	23 Jun 2016, 10:04 - CEST		0	negative
MizzVileAnimalO	RT @wride_nicholas: @jeremycorbyn you voted to dissolve the UK. Luckily you will never get to Number 10. #Brexit #labour #NHS #momentum	23 Jun 2016, 10:04 - CEST	Cornwall	1	neutral
firstpost	#BrexitOrNot: 'No turning back', #EU leaders warn #Britain from a vote to quit. Follow live: https://t.co/J0kCfrtdeZ https://t.co/huJCJqg8nF	23 Jun 2016, 10:04 - CEST		0	negative
PeterHase2014	@the_mehran @interUNFAO What did the Romans ever do for us? Don't we all know where this Brexit came from? Rampant antiMuslim xenophobia?	23 Jun 2016, 10:04 - CEST		0	negative
Lloyd_Ash	RT @RT_com: WATCH LIVE: #Brexit referendum underway in UK https://t.co/qDUkPWwxIt https://t.co/YkrhbcccDC	23 Jun 2016, 10:04 - CEST	Calgary - Mount Royal U	3	neutral
KaliYuga13	RT @BobEstropajo: Â¿Â¿CÃ³mo va a irse Gibraltar de la UniÃ³n Europea sin preguntar al resto de espaÃ±oleeeees?? #Brexit	23 Jun 2016, 10:21 - CEST		39	negative
tony_anthp	RT @Daily_Express: Britain CAN'T tackle mass immigration unless we QUIT EU today, Brexit MP says #EUref https://t.co/yQAjia067W https://t.câ€¦	23 Jun 2016, 10:21 - CEST		3	negative

mike_space_49	RT @josedeynes: Poundâ€™s Day of Destiny Arrives as History Shows Whatâ€™s Possible https://t.co/gYTxwUKyo1 via @business #Brexit #bremain #leâ€¦	23 Jun 2016, 10:21 - CEST	Puerto Rico, USA	1	negative
conchacornejo	RT @diazvillanueva: Hoy es lo del Brexit. Una no, dos ContracrÃ³nicas al efecto. https://t.co/mVD4Jmz1rz | https://t.co/fyGNye4eu1 https://tâ€¦	23 Jun 2016, 10:21 - CEST	Madrid	2	negative
SRDorman	RT @LondonDynaslow: I am a Tory Eurosceptic #Remain voter. #Brexit is simply not an intelligent choice at the moment. https://t.co/9CsDSbbâ€¦	23 Jun 2016, 10:21 - CEST	Edinburgh, Scotland	2	negative
RogerFNPrati	RT @RobertoFioreFN: #Brexit per l'Europa della pace e della #libertÃ . Uscire dalla #Ue dei ricatti, dell'usura e adesso, perfino degli omicâ€¦	23 Jun 2016, 10:21 - CEST		1	negative
Douglas_Nilsson	RT @TravellerAU: What the Brexit could mean for travellers to the UK and Europe https://t.co/uEXoVVPeGo	23 Jun 2016, 10:21 - CEST	Stockholm, Sweden, Earth	5	neutral
Charli3dog	RT @KevinAnth: SMASHED!!! FOUR BIG LIES TOLD BY REMAIN CAMPAIGN https://t.co/P3nvNAyBoB #Brexit #VoteLeave #Vote_Leave #StrongerIn	23 Jun 2016, 10:21 - CEST	ENGLISH not European	33	neutral
BiancheriLaura	RT @nausicalibre: https://t.co/3S4VUqkwOj Les tarÃ©s technocrates LRPS de l'UE, font un lien entre #Brexit et les nazi!=> Provoquer la peurâ€¦	23 Jun 2016, 10:21 - CEST	Annonay, RhÃ´ne-Alpes	3	negative
annembee	RT @LeaversOfPower: Walltowall Remain speeches on BBCNews24. Since they are TOTALLY impartial, I guess Gove, Gisela and Boris are havingâ€¦	23 Jun 2016, 10:21 - CEST	England	5	neutral
France_leve_toi	RT @pmcouteaux: #Brexit Un "effet indirect" plutÃ´t? De tt faÃ§ons, ce n'est pas l'anglais que parlent les EuropÃ©ens, mais l'amÃ©ricain https:â€¦	23 Jun 2016, 10:21 - CEST		1	negative
Parthlan	RT @OhBrokenBritain: BREXIT BOMBSHELL: Poll puts Leave SEVEN POINTS ahead of Remain hours before referendum https://t.co/iLuOrrcRGZ	23 Jun 2016, 10:21 - CEST		9	neutral
AlChiari	RT @fdragoni: La #Brexit? Un grosso affare per gli allibratori che potrebbero voler far credere che sia piÃ¹ probabile il #Remain https://t.â€¦	23 Jun 2016, 10:21 - CEST		9	negative
EliasAnyebe	What is this brexit thing	23 Jun 2016, 10:21 - CEST	Nigeria	0	neutral
OFX_OZ	Big day today as the UK decides to #Brexit or #Bremain. Don't forget OFX is open 24/7 during the #EUReferendum, including weekends! #support	23 Jun 2016, 10:21 - CEST	Sydney	0	negative
MockLabour	RT @TheSun: We speak to the nationâ€™s grafters on the #Brexit frontline before referendum of a lifetime https://t.co/TPVahbFRDZ https://t.coâ€¦	23 Jun 2016, 10:21 - CEST	Fabulous Sussex	30	neutral
DankefuerNixx	#Brexit #BrexitOrNot watching this EU misery! if you're smart u get out! if you want #Dictatorship #Merkel und a Muslim GB stay.	23 Jun 2016, 10:21 - CEST		0	neutral
Maaanick	RT @RTenfrancais: #Brexit entrainera "l'apocalypse Ã©conomique" selon Georges #Soros, Jacques Sapir lui rÃ©pond https://t.co/74JMfzsfH7 httpsâ€¦	23 Jun 2016, 10:21 - CEST	Paris	8	neutral

kreisnagel	RT @ManuelaKC: My Brexit Diary: The #Brexit ball #BrexitOrNot @dw_business https://t.co/0D39bcjC47	23 Jun 2016, 10:39 - CEST		1	negative
FcNoman	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 10:39 - CEST	Comilla, Bangladesh	3455	positive
gabriel4347	@LesEchosLive un des premiers effets bÃ©nÃ©fique du Brexit sera le dÃ©part de #Cameron	23 Jun 2016, 10:39 - CEST		0	neutral
PaulinaNeustart	RT @chrisuport_port: #britaininout #goodbyeUK #Brexit #BrexitOrNot #ivoted #Merkel https://t.co/EFwAnf3dlX	23 Jun 2016, 10:39 - CEST	Germany	7	negative
RosChappell	RT #Brexit WANTS US TO IGNORE EXPERT ADVICE @georgemagnus1 @dannyjpalmer @timjohnston_89 @Scientists4EU @caketin85 https://t.co/eucswtjlGE	23 Jun 2016, 10:39 - CEST		0	negative
VilleTynkkynen	#politologi'n vuoden ehkÃ¤ mielenkiintoisin pÃ¤ivÃ¤ on tÃ¤nÃ¤Ã¤n. #Brexit #Remain #StrongerIn #standbyme	23 Jun 2016, 10:39 - CEST		0	negative
loopvlak	#Johnson neemt er eentje op Brexit = Hij heeft nog last van het Imperium virus! https://t.co/gJHYJfebyJ via https://t.co/44MuRLpW76	23 Jun 2016, 10:39 - CEST	somewhere in the milky way	0	negative
MiddletonRiddle	RT @Independent: Leave supporters are very suspicious about the pencils at polling stations https://t.co/ygRdXrcx66 https://t.co/m4FcG3197J	23 Jun 2016, 10:39 - CEST	London	14	positive
barbycottontail	RT @liz_buckley: Shattered from thunder & lightning and worry about the monster Brexit created. I feel like I'm in a really cheap Frankenstâ€¦	23 Jun 2016, 10:39 - CEST		4	negative
worldnewsday	Ð Ð˜Ð• ÐÐ¾Ð²Ð¾ÑÑ‚Ð¸ | Ð’ Ð¼Ð¸Ñ€Ðµ: ÐŸÑ€ÐµÐ¼ÑŒÐµÑ€ Ð‘Ñ€Ð¸Ñ‚Ð°Ð½Ð¸Ð¸ Ð¸ Ð»Ð¸Ð´ÐµÑ€ Ð»ÐµÐ¹Ð±Ð¾Ñ€Ð¸ÑÑ‚Ð¾Ð² Ð¿Ñ€Ð¾Ð³Ð¾Ð»Ð¾Ñ•Ð¾Ð²Ð°Ð»Ð¸ Ð½Ð° Ñ€ÐµÑ„ÐµÑ€ÐµÐ½Ð´ÑƒÐ¼Ðµ Ð¾ Brexit https://t.co/9qdFxBNhzH	23 Jun 2016, 10:39 - CEST	Russia, Moscow	0	positive
wastespecialist	RT @JacksonT0ny: Our dear neighbours & friends are saying 'please remain'. So let's do just that. We're #StrongerIn #EUref https://t.co/1â€¦	23 Jun 2016, 10:39 - CEST	North Yorkshire	62	negative
cut_the_crap_ec	RT @cholt_1: #VoteLeave #TakeBackControl #TakeControl #Brexit https://t.co/TMOzmYNBUZ	23 Jun 2016, 10:39 - CEST	USA, UK, Israel	47	positive
uk_rants	I really didn't think this whole "I'd kiss all who vote #Brexit" through, did I? https://t.co/agZF4Wa1Tj	23 Jun 2016, 10:39 - CEST	UK	0	negative
Hay_Quaker	RT @Lad87Red: Get out & #VoteRemain. Don't ignore expert after expert & gamble on Britain's future all for the big #Brexit con#Remain #Eâ€¦	23 Jun 2016, 10:39 - CEST	Hay on Wye, Wales	12	negative
JohanBigSmile	Si les anglais vote pour le brexit vous pensez que Ã§a va accuser l'islam ou pas ?	23 Jun 2016, 10:39 - CEST	Paris, Ile-de-France	0	negative

StefanoVP2013	RT @rgenci57: You know, you want it! Happy #Leave #Brexit ers! Tomorrow this time you'll celebrate! https://t.co/S1KSnFJzlO	23 Jun 2016, 10:39 - CEST		22	positive
StichtingLOOP	Gevolgen van #Brexit voor de zorg onduidelijk. https://t.co/0bFGLbDOPs	23 Jun 2016, 10:39 - CEST	Nederland	0	negative
AvP_opleiding	Gevolgen van #Brexit voor de zorg onduidelijk. https://t.co/V8U3JnA4Pa	23 Jun 2016, 10:39 - CEST		0	negative
pramodkrrawat	à¤®à¥⍰à¤¸à¤²à¤®à¤¾à¤¨à¥‹à¤, à¤•à¥‡ à¤•à¤¾à¤°à¤£ à¤¹à¥‹ à¤°à¤¹à¤¾ à¤¬à¥⍰à¤°à¤¿à¤Ÿà¥‡à¤¨ EU à¤¸à¥‡ à¤¬à¤¾à¤¹à¤°, à¤œà¤¨à¤®à¤¤ à¤¸à¤‚à¤—à¥•à¤°à¤¹ à¤†à¤œ #Brexit #referendum https://t.co/5fdi0lp9wo	23 Jun 2016, 10:39 - CEST	Haridwar	0	negative
J_Manasa	@moralmyopia and a lot of rights and things are enshrined in EU law and I don't trust the Tories to uphold them if we brexit.	23 Jun 2016, 10:39 - CEST	josh_m_lee@outlook.com - LDN	0	negative
CozzolinoSalvo	Dedicata a tutti i miei amici UK....... #brexit #Bremain https://t.co/ltebgRmtHz	23 Jun 2016, 10:56 - CEST	Milano	0	negative
midiario	Abren las urnas en Reino Unido para el referendo sobre la UE https://t.co/IMNWpjs1mm #Internacionales	23 Jun 2016, 10:56 - CEST		0	negative
NiallQuinn	Interesting @SkyNews giving 'breaking news' status to latest @ons UK population stats showing 500k increase. Surely plays into #Brexit ?	23 Jun 2016, 10:56 - CEST	Dublin	0	positive
InvestingTR	Brexit ABD Ä°Ã§in Sorun Olmayabilir de Olabilir de https://t.co/f5TCkHARgJ	23 Jun 2016, 10:56 - CEST		0	neutral
HoxtonHill	Pouring with rain but also boiling, clearly the #britishweather is as upset about potential Brexit as I am #VoteRemain	23 Jun 2016, 10:56 - CEST		0	negative
heidup24	#viral Oil down after small U.S. drawdown; seen choppy before Brexit vote... https://t.co/HefAEVLyUV	23 Jun 2016, 10:56 - CEST		0	negative
CharWalters65	Brexit Referendum Live Updates: Vote Results, Stock Market Reactions And What Happens Next If The UK Leaves The EUâ€¦ https://t.co/mfk7bnUzdi	23 Jun 2016, 10:56 - CEST	United States	0	positive
TheAustinRhodes	RT @Chinky_Ree: David Camelon getting despelate now: "If we leave the EU, there will only be 24 letters left in the Alphabet" #Brexit	23 Jun 2016, 10:56 - CEST	Shit Creek	2	positive
labonam	Jour de voteÂ : la presse britannique majoritairement proÂ«Â BrexitÂ Â» https://t.co/vLjMzjylw4	23 Jun 2016, 10:56 - CEST	Toulouse	0	neutral
mikeBinESP	RT @2tweetaboutit: How the European dream died: Cheers as @Nigel_Farage nails case for Brexit while Merkel fumes https://t.co/SXo0t4I8uC	23 Jun 2016, 10:56 - CEST	Malaga, Spain	62	neutral
alanmaddison20	@jackjoh01219520 @bcomininvisible Brexit refuse to say they will reduce immigration let alone by how much.It is a rightwing coup!	23 Jun 2016, 10:56 - CEST	Tyne and Weary, England	0	negative

Tactical_Things	RT @amc0010: Leaked Letter Reveals That David Cameron Hatched Anti Brexit Plot https://t.co/6P6EmA2EBh via @peoplesvoice_tv	23 Jun 2016, 10:56 - CEST	UK	3	negative
Collectif_VAN	RT @BFMTV: Brexit: la Turquie veut absolument le maintien du RoyaumeUni dans l'UE https://t.co/puBFUYTaTR https://t.co/1e0T8tudpw	23 Jun 2016, 10:56 - CEST	Issy-les-Moulineaux [France]	10	negative
suffolkliz	@swedesforbrexit Will be voting Leave for UK &all of our European cousins today! #wearefamily Let's do this!#brexit https://t.co/9ZXLP8eoWz	23 Jun 2016, 10:56 - CEST		0	positive
Splash_247	RT @SafetyOrProfit: If you're in the #UK, in #maritime and allowed to #vote, read this: https://t.co/g88E2SQvBy #Remain	23 Jun 2016, 10:56 - CEST		3	negative
Mark887309061	RT @ANDREASSTAVRI: @ProudPatriot101 #BREXIT BOMBSHELL: Poll puts Leave SEVEN POINTS ahead of Remain hours before referendum https://t.coâ€¦	23 Jun 2016, 10:56 - CEST	England, United Kingdom	7	neutral
hazardnews365	#viral Oil down after small U.S. drawdown; seen choppy before Brexit vote... https://t.co/ilVbVlF5mY	23 Jun 2016, 10:56 - CEST		0	negative
MarkinCW5	@StrongerIn @SadiqKhan Utter bollocks the #EU is parasitic and our relationship needs to end #BREXIT	23 Jun 2016, 10:56 - CEST	Cheshire	0	negative
CharWalters65	Bitter â€˜Brexitâ€™ Campaign Could Turn on Record Number of Voters https://t.co/vmHiSfWGyh	23 Jun 2016, 10:56 - CEST	United States	0	negative
_Agatha_AB_	RT @polskathetimes: ElÅ¼bieta II nieoficjalnie popiera #Brexit? Tak twierdzi biograf krÃ³lowej https://t.co/mmjcMYgVIG https://t.co/WlSYdi6TkW	23 Jun 2016, 10:56 - CEST	PrzyszÅ, oÅ›Ä‡ ma na imiÄ™ Polska!	9	positive
Fabri_Biscotti	Sleepless in the City Lets Traders Bet Billions on Brexit Result https://t.co/4HdBi4loFG via @business	23 Jun 2016, 10:56 - CEST	Surrey - UK	0	negative
AndreAltier	#RadioValle Ã¨ contro il Brexit, please don't leave us. | The Clash London Calling (Official Video) https://t.co/giSNzERs2I	23 Jun 2016, 10:56 - CEST	Arcisate, Lombardia	0	positive
ClaudiaJefferie	RT @OwenJones84: If Brexit happens, we will face the fights of our lives and we have to prepare. My video: https://t.co/2srq39cOLw https:â€¦	23 Jun 2016, 10:56 - CEST	London	1608	negative
VeldhuisC	RT @SpencerHills2: LETS TAKE BACK CONTROL OF OUR UNITED KINGDOM EVERY BRITISH SUBJECT MUST DO THERE DUTY @vote_leave #BREXIT #VICTORY X httâ€¦	23 Jun 2016, 10:56 - CEST	Noord-Holland	30	positive
subtel1	RT @obritom: Democratic duty done. #voteleave Steady stream of voters hope overwhelmingly #Brexit	23 Jun 2016, 10:56 - CEST	England	1	positive
Homenews365	#viral Oil down after small U.S. drawdown; seen choppy before Brexit vote... https://t.co/7QxnSGo22v	23 Jun 2016, 10:56 - CEST	Santa Clara	0	negative
MauroAluigi	RT @Dwalingen: Gorbachev warned the European people about the striking similarities between the #EU and Soviet Union . #Brexit https://t.coâ€¦	23 Jun 2016, 10:56 - CEST	bancario	88	negative

smackfairy	It's decision time! Don't let Britain go to waste!! #brexit #EUref #Remain https://t.co/RqFCB0riJJ	23 Jun 2016, 10:56 - CEST	London, UK (via Munich)	0	negative
anca_toader	RT @NickKristof: As Brits vote on Brexit, my column: R.I.P., Jo Cox. May Britain Remember Your Wisdom. https://t.co/aKsTqgLOn7 https://t.coâ€¦	23 Jun 2016, 10:56 - CEST	London, UK	5	positive
FabFfabien33	RT @charlemagne1968: #Brexit INCROYABLE! Les citoyens du Commonwealth rÃ©sidant au Royaume Uni votent au #Referendum!!! En plus des 2de genâ€¦	23 Jun 2016, 10:56 - CEST	Sud ouest France.	20	positive
ram191182	#Bremain vs #Brexit	23 Jun 2016, 10:56 - CEST	Mumbai	0	negative
QuantumExplorer	RT @ira_tenax: I'm Italian and I endorse #Brexit because we can be united only in freedom, sovereignty and rule of law. #VoteLeave https:/â€¦	23 Jun 2016, 10:56 - CEST		8	positive
hopbin	The #Brexit Alien, made whole after #Brexit team returns to orbiting mother ship. https://t.co/ciQ1fC3lf1	23 Jun 2016, 10:56 - CEST		0	neutral
ajit8_	RT @yiota143: By all means, vote to remain in the EU! #brexit Read: https://t.co/XfvQsEmdd6	23 Jun 2016, 10:56 - CEST	USS Britain	5	negative
unblogd	#VoteLeave #BrExit https://t.co/lUjVzKMh6T	23 Jun 2016, 10:56 - CEST	KÃ¶ln, Deutschland	0	positive
FFI2045	RT @isabell97789125: #Brexit https://t.co/hnNQcCKYwR	23 Jun 2016, 10:56 - CEST	FRANCE	2	neutral
nicholasaylott	RT @olsson_erik: Oavsett hur det gÃ¥r i dag kan detta vara en frÃ¥ga att stÃ¤lla sig. Har sÃ¶kt svar via bl a @nicholasaylott #Brexit https://â€¦	23 Jun 2016, 10:56 - CEST	Stockholm	1	negative
Contrepoints	RT @jipebe29: Brexit : que disent vraiment les partisans du Leave ? https://t.co/nd8d73BmdO via @Contrepoints	23 Jun 2016, 10:56 - CEST	Paris, France	1	positive
Fabrysilvia	RT @LeaveEUOfficial: Make sure you get out to vote today for our independence and a brighter future! #EUref #Brexit #VoteLeave https://t.coâ€¦	23 Jun 2016, 10:56 - CEST	Manchester, UK	223	positive
corbynjokes	Yo mama so dumb we have to say she's voting for Brexit because of political disengagement rather than racism or stupidity.	23 Jun 2016, 10:56 - CEST	Islington, London	1	negative
polskathetimes	A @Nigel_Farage dziÅ› od rana w doskonaÅ‚ym humorze… #EUref #Brexit Relacja na Å¼ywo: https://t.co/7UONeHTFjl https://t.co/8gQ8EDArySm	23 Jun 2016, 10:57 - CEST	Polska	0	positive
HusainAlmahmood	RT @docshayji: Ø¨ÙŠÙ† Ø§Ù„Ø¨Ù‚Ø§Ø¡ Ù⍰ÙŠ Ø§Ù„Ø§ØªØØ§Ø¯ Ø§Ù„Ø§Ù^Ø±Ù^Ø¨ÙŠ(Ø£ÙƒØ¨Ø± Ø§Ù‚ØªØµØ§Ø¯ Ù⍰ÙŠ Ø§Ù„Ø¹Ø§Ù„Ù… Ù„28 Ø¯Ù^Ù„Ø©) Ù^Ù„ÙŠÙ† Ø§Ù„Ø§Ù†Ù⍰ØµØ§Ù„ Ù…Ù† Ø§Ù„Ø§ØªØØ§Ø¯ Ø§Ù„Ø§Ù^Ø±Ù^Ø¨ÙŠ!! #Brexit or #Remain Ù^ØªØ¯Ø¹Ù…â€¦	23 Jun 2016, 10:57 - CEST	Paris - France	3	negative

e_pitzky	RT @APatzwahl: Ich wette, das der #Brexit heute zugunsten der Gegner ausgeht. 50,35%. Das hat BrÃ¼ssel schon entschieden! #BrexitOrNot	23 Jun 2016, 10:57 - CEST		2	negative
boerse_talk	The latest @boerse_talk! https://t.co/P4RPgN9T5l Thanks to @GregorKuhn_IG #brexit #buy	23 Jun 2016, 10:57 - CEST	Frankfurt | Germany |	0	positive
ElyaNowogrodski	RT @Independent: Leave supporters are very suspicious about the pencils at polling stations https://t.co/ygRdXrcx66 https://t.co/m4FcG3197J	23 Jun 2016, 10:57 - CEST		37	positive
Fragile_mag	" Î”ÎµÎ½ Î¼Î¹Î»Î¬Î¼Îµ Ï€Î¿Î»Ï•, ÏƒÏ‡ÎµÎ´ÏŒÎ½ Î³Î¹Î± Ï„Î¯Ï€Î¿Ï„Î±. Î›Î¿Ï…Ï†Î¬Î¾Î±Î¼Îµ ÎºÎ±Î¹ Ï€ÎµÏ•Î¹Î¼ÎÎ½Î¿Ï…Î¼Îµ...." #brexit #bremain https://t.co/wBkmbWkPoy https://t.co/g1GlvRK17A	23 Jun 2016, 10:57 - CEST		0	negative
grancake	RT @SocEconMag: Steve Hedley of @RMTunion makes the trade union case for #Lexit #VoteLeave #Brexit #EUref https://t.co/0LzR0fwIqv https:â€¦	23 Jun 2016, 10:57 - CEST	Staffordshire	33	positive
iamnews24	#viral Oil down after small U.S. drawdown; seen choppy before Brexit vote... https://t.co/YkoWpXPOXF	23 Jun 2016, 10:57 - CEST		0	negative
MarcoDaCostaFX	RT @elEconomistaes: Â¡Buenos dÃas! Hoy pendientes de Reino Unido que ya ha comenzado a votar Â¿Brexit o Bremain?https://t.co/yjgUIGyBaf httpsâ€¦	23 Jun 2016, 10:57 - CEST	Madrid, Spain	18	negative
AnneUrda	To Brexit or not to Brexit: that is the question facing Brits today. @Law360 is here in London and will have complete coverage of the vote.	23 Jun 2016, 10:56 - CEST		0	neutral
Monument_Macia	Salou i Magaluf tambÃ© votaran #Brexit	23 Jun 2016, 10:56 - CEST	VNG.CAT	0	positive
prestontowers	RT @pmdfoster: Ouch. via @DAaronovitch #Brexit #Remain #EUref #EUreferendum https://t.co/BCEVzwf1LG	23 Jun 2016, 10:56 - CEST	Lower Blue Mountains, NSW	39	negative
Woodlandbookshp	@barjohnhome @thecarolemalone Oh so jobs don't matter to you....got it. #ImAllRightJack #Brexit	23 Jun 2016, 10:56 - CEST	Cymru, United Kingdom	0	negative
lrodriguezhorca	A quien le importa una el Brexit, a mi nada, estÃ¡n tardando.....	23 Jun 2016, 10:56 - CEST	Madrid	0	negative
tt_saw	RT @eToro: What do you think the UK public will vote in next week's #referendum? #brexit	23 Jun 2016, 10:56 - CEST	England, United Kingdom	936	neutral
JennSelby	... Is quite similar to what my reaction will be if I do not wake up to dystopian postBrexit Britain tomorrow. https://t.co/mCwb5zpL0D	23 Jun 2016, 10:56 - CEST	London	0	neutral
TradingYuppy	RT @Fxflow: Do like Austin and LIVE trade the Brexit with us	23 Jun 2016, 10:56 - CEST		3	positive

	June 23 starting 2330 GMT https://t.co/l1yOvJcmbp https://t.co/m8pEYqgheY				
aronresebo	@Sauronsstock Tror inte man ska fÃ¶rvÃ¤nta sig fÃ¶r mkt dagen innan Brexit/Bremain, Ã¤ven om man anar utfallet. Gissar folk Ã¤r passiva nu.	23 Jun 2016, 10:56 - CEST		0	negative
iamjamup24	#viral Oil down after small U.S. drawdown; seen choppy before Brexit vote... https://t.co/7ZJUwqJB6c	23 Jun 2016, 10:56 - CEST		0	negative
JLLupstream	It's decision day in Britain. Check out the @FT live blog on the Brexit vote https://t.co/lTGYy4O4Oa https://t.co/2jRiw2TvVl	23 Jun 2016, 11:14 - CEST	London	0	positive
wakingthemonkey	I think this is a reason to #Leave don't you? #Brexit https://t.co/x7HMp47jVX	23 Jun 2016, 11:14 - CEST	West Yorkshire	1	positive
dvdsmpsn	"A RACIST nan who is fuelled entirely by hate has began her slow & unsteady journey to the polling station" #brexit https://t.co/dtqgSatls8	23 Jun 2016, 11:14 - CEST	Nottingham, England.	0	negative
omaticaya52	BREXIT, what's gonna be today? What do you think it must be??	23 Jun 2016, 11:14 - CEST	Chile	1	neutral
HMS_Indomitable	RT @ObliviousReaper: @Chrisuk1943 @jemimabond007 Brexit is having confidence in the country, rather than outsourcing its management to overâ€¦	23 Jun 2016, 11:14 - CEST	UK	1	positive
laurenpn	RT @UKIPNFKN: You won't 'get back your country' if you vote for a #Brexit you'll give it away #StrongerIN #VoteIN #Euref https://t.co/oâ€¦	23 Jun 2016, 11:14 - CEST		4	negative
albertof0000	RT @raramolecola: Detto in parole semplici e povere, ma a noi che non n abbiamo un soldo, MA CHE CAZZO CE NE FREGA DELLA GRAN BRETAGNA?!?!â€¦	23 Jun 2016, 11:14 - CEST	Pagani, Campania	42	negative
ParticleBiz	Gold Hugs $1070 Ahead Of Brexit Vote, More Yellen #JanetYellen #FOMC... https://t.co/NAlsGdGQ7l	23 Jun 2016, 11:14 - CEST	Santa Clara, CA	0	positive
FranTrombetta	@Corriere a 'mbe! notizione che traballi il Trono di Spade in caso di Brexit! @AndFranchini @andreaprincipi	23 Jun 2016, 11:14 - CEST		0	positive
macdonaldrtr	After #Brexit Roadmap for a leap in the dark https://t.co/1SHr71NGLN via @ReutersUK	23 Jun 2016, 11:14 - CEST	Brussels	0	negative
nickareay	@campbellclaret Excellent speech on #c4debate there is no manifesto, no case from Brexit. How can you vote for a cause with no plan or idea	23 Jun 2016, 11:14 - CEST	West Mersea, England	0	negative
HelleNico	"Making Sense of â€˜Brexitâ€™ in 4 Charts" by AMANDA TAUB via NYT The New York Times https://t.co/isua5Hfoxu	23 Jun 2016, 11:14 - CEST	Boston	0	neutral
24Espana	Brexit: GuÃa para seguir y no perderse nada en la noche del referÃ©ndum https://t.co/GrDKPH5yH5 #notÃcias #EconomÃa https://t.co/yw8eiDAthn	23 Jun 2016, 11:14 - CEST	EspaÃ±a	0	negative

hedviggunn	#brexit "â•¤"	23 Jun 2016, 11:14 - CEST	Sweden	0	neutral
noticias21es	Abren las urnas este jueves en Reino Unido para el histÃ³rico referÃ©ndum sobre el 'Brexit' https://t.co/BO2OBsZikm	23 Jun 2016, 11:14 - CEST		0	negative
Unstableshark	RT @BeverleyTruth: #BREXIT FOR REAL FREE FAIR TRADE WITH AFRICA , SOUTH AMERICA AND THE WORLD https://t.co/PPHpztYmLE	23 Jun 2016, 11:14 - CEST		7	positive
hondacrv2	RT @DavidJo52951945: Now Merkel warns the EU is facing an immigration crisis from Africa god help us if we stay in the EU https://t.co/acpâ€¦	23 Jun 2016, 11:14 - CEST	kings Langley	20	negative
HelleNico	"Portraits of a Nation Contemplating a â€˜Brexitâ€™" by Unknown Author via NYT The New York Times https://t.co/vocMqsotif	23 Jun 2016, 11:14 - CEST	Boston	0	neutral
blackjackweiner	RT @PeterMagLob: https://t.co/v0L5ecbofB #BritainInOut #GoodbyeUK #RemainINEU #EUref https://t.co/LkHrqSGFME	23 Jun 2016, 11:14 - CEST	Germany	2	negative
AbuKhamr	RT @snarwani: I voted #brexit today. 1) When economies shrink, people get 'tribal', so EU is sunk anyway 2) As we can see, EU didn't protecâ€¦	23 Jun 2016, 11:14 - CEST		1	negative
Miningfin	RT @AndreVTP: The Ecstasy For Gold And The Brexit Vote $GLD https://t.co/t2aJU5dSg8	23 Jun 2016, 11:31 - CEST	The Vault	2	positive
Ash_Davo	RT @PPOffers: It's now 1/7 that the UK remains in the EU, with exiting out to 5/1! https://t.co/pLotIQ4cF0 #Brexit	23 Jun 2016, 11:31 - CEST		2	negative
timmieasdallas	The Interpreter: Making Sense of â€˜Brexitâ€™ in 4 Charts https://t.co/pMzJQ3BqyB	23 Jun 2016, 11:31 - CEST	Arizona, USA	0	neutral
scottthong	RT @PrisonPlanet: Wealthy elites manipulating bookie odds to make #VoteRemain seem inevitable? https://t.co/UbS0O16kRa #Brexit	23 Jun 2016, 11:31 - CEST	Malaysia	167	negative
davidlevasseur7	Empire like yours doesn't deserve to desapear https://t.co/ttunwtHjbd	23 Jun 2016, 11:31 - CEST		0	negative
mlgrufman	@AllanIvarsson hÃ¥ller hÃ¥ller med, tycker det kÃ¤nns lite vÃ¤l mkt risk on att stÃ¤nga 13601370 ish idag iom brexit mm	23 Jun 2016, 11:31 - CEST	Stockholm, Sweden	0	negative
the_max_doom	lesbian on popmaster! *votes brexit*	23 Jun 2016, 11:31 - CEST		0	positive
_dandell	RT @SpiegelPeter: Nervous about #Brexit much? Sterling volatility hits new highs overnigjt. @FT liveblog: https://t.co/tvZtTDmlk7 https://tâ€¦	23 Jun 2016, 11:31 - CEST	Vienna, Austria	6	negative
ShiftSprintDS	RT @BreitbartLondon: God Seems to Be Voting for Brexit https://t.co/syxBVnRpW2 https://t.co/3tLL5UTEg8	23 Jun 2016, 11:31 - CEST	L.A. Meltdown	10	neutral
TaleOf2Parties	RT @MarketWatch: U.S. stocks set for gains after Brexit polls point to â€˜stayâ€™ vote https://t.co/Fpp69qQhbC	23 Jun 2016, 11:31 - CEST		6	positive
DavideRibolini	RT @NicolaMorra63: #Brexit Gli inglesi esercitano il loro diritto di cittadinanza pur essendo sudditi della corona. A noi, che... https://tâ€¦	23 Jun 2016, 11:31 - CEST		4	positive

ethical753	RT @cnni: The nonBrit's guide to the EU referendum: https://t.co/6jLcwRkejB #EUref https://t.co/uttTHNdnJ7	23 Jun 2016, 11:31 - CEST	Chigwell, England	47	neutral
emmahokon1	RT @MarketWatch: These are the stocks to buy in the wake of Brexit, Trump and recession fears: https://t.co/P9jjb7DjjY https://t.co/NWLDd0Qâ€¦	23 Jun 2016, 11:31 - CEST	Abuja,Nigeria	9	negative
timmieasdallas	Brussels boss tells PM: NO more reform to Britain's EU membership after Brexit vote https://t.co/wqVBOn9Ycp	23 Jun 2016, 11:31 - CEST	Arizona, USA	0	neutral
NikoAgo	RT @kanekos69: Î‘Ï•Ï•Î¹Î¿ Î¸Î± Î¾ÏÎ¿Ï…Î¼Îµ Î±Î½ Î· Î’ÏÎµÏ„Î±Î½Î¯Î± Î¸Î± Ï€Î±Ï•Î±Î¼ÎµÎ¯Î½ÎµÎ¹ ÏƒÏ„Î·Î½ Î•.Î• Î® Î¸Î± ÎµÏ€Î¹ÏƒÏ„ÏÎµÏˆÎ¿Ï…Î¼Îµ ÏƒÏ„Î·Î½ Î´ÏÎ±Ï‡Î¼Î· #Brexit	23 Jun 2016, 11:31 - CEST	Stockholm, Sweden	53	neutral
SynthInsania	RT @bonbuf60: @jongaunt Jon, a Germany car manufacture said after Brexit business as normal, and Turkey deal is ON,can we hold dave to Accâ€¦	23 Jun 2016, 11:31 - CEST		9	positive
NCPoliticsUK	RT @NCPoliticsEU: #EUref summary: Polls say REMAIN+2 Nowcast 5248 Forecast 5347 #Brexit % chance 25 (1) https://t.co/hUxOTPhRiB httpsâ€¦	23 Jun 2016, 11:31 - CEST	UK	17	negative
chauchat_maria	RT @doberah: Cute: @BILD says if Brits vote against Brexit, the Germans will recogniz(s)e the 1966 heartbreaker Wembley goal https://t.co/zâ€¦	23 Jun 2016, 11:31 - CEST	Italy	35	negative
wdjstraw	RT @SpiegelPeter: Nervous about #Brexit much? Sterling volatility hits new highs overnigjt. @FT liveblog: https://t.co/tvZtTDmlk7 https://tâ€¦	23 Jun 2016, 11:31 - CEST	United Kingdom	6	negative
monalemuria	RT @KimJongUnique: En cas de #Brexit, Hollande sera "inflexible" selon Macron. Comme avec LÃ©onarda, Martinez, les antifas... https://t.co/Gâ€¦	23 Jun 2016, 11:31 - CEST		96	neutral
ClaireMiddleto4	RT @DarthPutinKGB: It is not those who vote that matter. It is those who count. #Brexit	23 Jun 2016, 11:48 - CEST		93	negative
Altair_Ita	In sostanza il discorso Brexit Ã¨ cosÃ¬ riassumibile: https://t.co/BsRF1mBMCD	23 Jun 2016, 11:48 - CEST	Messina, Sicilia, Italia	0	positive
JimWats42183375	RT @LouiseMensch: Roses are red, violets are blue, If you love Europe But not the EU #VoteLeave #Brexit and #TakeControl https://t.co/LR90Kâ€¦	23 Jun 2016, 11:48 - CEST		230	positive
LaJovendlPerla	RT @jesusmarana: No hay dÃa mÃ¡s oportuno para echar un vistazo al dossier de @_infoLibre y @mediapart sobre el #Brexit https://t.co/g69TSA4â€¦	23 Jun 2016, 11:48 - CEST		7	negative

ellecome222	RT @Dwalingen: The Peoples of Europe are hoping for a #Brexit domino effect into #Nexit #Frexit etcetc. The #EU has failed us all https://tâ€¦	23 Jun 2016, 11:48 - CEST		20	negative
Lin_121	@BeverleyTruth @DDawn0 OMG THAT IS TRULY WONDERFUL NEWS I SENSE A LANDSLIDE #BREXIT	23 Jun 2016, 11:48 - CEST	England, United Kingdom	0	positive
zzazzye	RT @robertraineyni: Still undecided? #Brexit #EUref #VoteLeave This is correct way to complete ballot https://t.co/B9x6l3pqTn	23 Jun 2016, 11:48 - CEST		9	positive
inspaceitrust	All the best to Brits braving the weather to vote. #iVoted #brexit but as for whether that'll happen or not, I wouldn't want to bet on it.	23 Jun 2016, 11:48 - CEST	England, United Kingdom	0	positive
LaJovendlPerla	RT @DebatAlRojoVivo: FernÃ¡ndez DÃaz : "Lo que me preocupa hoy es el 'Brexit'" #EscuchasCatalunyaARV https://t.co/YwsIr0dYjl https://t.co/â€¦	23 Jun 2016, 11:48 - CEST		19	neutral
ausdjforums	Eâ€™s To Soar To Â£60 A Pill If Brexit Succeeds â†’ https://t.co/lEOVXbIm5M https://t.co/ZOp8XaSifm	23 Jun 2016, 11:48 - CEST	Australia	0	positive
Ryanshedden	RT @Dezeen: "Vote Leave is a vote for a theme park instead of a country" â€“ Sam Jacob: https://t.co/VQwCV3aVo5 #Opinion https://t.co/1T9vhcaâ€¦	23 Jun 2016, 11:48 - CEST	Clapham, England	10	positive
PremierLeague8	#PremierLeague Picture Special: Every Premier League player who could be affected by Brexit revealed https://t.co/qEMKZbkZ3j	23 Jun 2016, 11:48 - CEST		0	neutral
economistniraj	RT @JMurray804: Bloomberg illustrates Brexit https://t.co/3ZDcLQnb3n @DanHanson41 @muhammadakd https://t.co/7lTCR6crVg	23 Jun 2016, 11:48 - CEST	London	5	negative
A_G_Dugin	Et si le Brexit donnait aux FranÃ§ais la volontÃ© de reconstruire lâ€™Europe ? https://t.co/yatANBpCuD	23 Jun 2016, 11:48 - CEST	Heartland	0	neutral
paolodriussi	Brexit, il giorno piÃ¹ lungo per l'Europa. "Leave" o "Remain", alle urne 46,5 milioni di britannici https://t.co/edmjF19Mss via @repubblicait	23 Jun 2016, 11:48 - CEST	Italy	0	neutral
solos4242	Brexit Movie https://t.co/olBBLXYYxd #EU pd fisherman 2destroy their boats while giving fishing rights to others https://t.co/wqYhskhT9s	23 Jun 2016, 11:48 - CEST		0	positive
anthony94520648	RT @LeaveEUOfficial: Shameful stuff from the Remains. @GiselaStuart has made a commitment to the UK and has ever right to back #Brexit. httâ€¦	23 Jun 2016, 11:48 - CEST	The Kingdom	2	positive
Mosharraf0129	AJEnglish : Beyond the #Brexit debate https://t.co/dsQsScbxjk by kenanmalik â€¦ https://t.co/e4SkxN3lVO) https://t.co/UuB3Ken1iY	23 Jun 2016, 11:48 - CEST	Dhaka, Bangladesh	0	negative
jpnoblejr	RT @WSJ: Even if Britain votes against 'Brexit', the market's relief would be shortlived, writes @Simon_Nixon. https://t.co/I3XsOgw6fD	23 Jun 2016, 11:48 - CEST	Somewhere in the world	7	neutral

NewsdeskWORLD	RT @nytimesworld: Brexit in 4 charts: a generational divide that's about more than age https://t.co/YtDQcE895H	23 Jun 2016, 11:48 - CEST		2	negative
Nigel450	RT @Independent: Leave supporters are very suspicious about the pencils at polling stations https://t.co/ygRdXrcx66 https://t.co/m4FcG3197J	23 Jun 2016, 12:05 - CEST	Midlands	74	positive
7E55E	RT @Stop_The_EU: On #Brexit the UK will become the EU's biggest export market. #VoteLeave https://t.co/wI7ORkoTuM	23 Jun 2016, 12:05 - CEST	Kyoto, Japan	85	positive
frspch	RT @Ironwand: Tony Benn would have voted #Brexit on #IndependenceDay! If the establishment wants it, do the opposite! #VoteLeave https://â€¦	23 Jun 2016, 12:05 - CEST		14	positive
Monalisazelf	RT @Knack: Hoe kan u gokken op een bremain of brexit? https://t.co/AdpW79t5gM https://t.co/HVGTdGyAHD	23 Jun 2016, 12:05 - CEST		2	negative
Risto_Matti	RT @FIMRahantaju: #BrexitÃ¤Ã¤nestys on alkanut. Katso, miten voi kÃ¤ydÃ¤, jos britit lÃ¤htevÃ¤t tai jos he jÃ¤Ã¤vÃ¤t. https://t.co/jGSymmOJtj httpsâ€¦	23 Jun 2016, 12:05 - CEST		2	negative
orzowaymilano	RT @Virginia_Reggi: E io che pensavo che il Brexit fosse il cocktail dell'estate in arrivo dalla Gran Bretagna #BrexitOrNot #Brexit	23 Jun 2016, 12:05 - CEST	Milano Italy - London U.K.	47	positive
Trendsiana	Jeffrey Simpson: Will a long, loveless marriage end with Brexit? https://t.co/CzDGTDtfty	23 Jun 2016, 12:05 - CEST	Worldwide	0	negative
mahonnew67	RT @JuliaHB1: Yet another good reason to Vote Leave. #Brexit https://t.co/ZppueosTB6	23 Jun 2016, 12:05 - CEST	brum	1330	positive
FxsignalOnline	Gold investors wrestle with Brexit vote in wild options dealings https://t.co/ngGQnAUmzd	23 Jun 2016, 12:05 - CEST	Online	0	neutral
swimmerboy2379	The Brexit Vote Is the Perfect Excuse to Revisit This Song by The Clash via TIME.câ€¦ https://t.co/DAi7mcI3yr https://t.co/aMkPOZqVXN	23 Jun 2016, 12:05 - CEST	current location	0	neutral
BoulyPorte	RT @rdinho3: #Macron : en cas de #Brexit, "la France sera inflexible" avec le RoyaumeUni #EnMarche vers plus de dictature #UE https://t.câ€¦	23 Jun 2016, 12:05 - CEST		5	negative
news89	Der BrexitEndspurt ist nichts fÃ¼r Zimperliche: Premier Cameron kÃ¤mpft um jede Stimme, Boris Johnson kÃ¼sst ei... https://t.co/SEqUmxtaLW	23 Jun 2016, 12:05 - CEST	on Twitter	0	neutral
Matt_Dark	But I want to see brexit .. It will be interesting to see how market react after that	23 Jun 2016, 12:05 - CEST	dalam hati Amani â•¤ï¸•â•¤ï¸•... awww	0	positive
VeoNoticias_	EN VIVO: Â¿El fin del sueÃ±o europeo? 'Brexit' o 'Bremain', los britÃ¡nicos deciden su futuro https://t.co/nMV5MgOTWc https://t.co/rPX1H3pghw	23 Jun 2016, 12:05 - CEST	El Mundo	0	negative

BobLeCentriste	.@GuyVerhofstadt Â«Si le #Brexit passe, c'est #Poutine qui va rireÂ» #Remain #ALDE #ADLE https://t.co/BGLILxrpPC	23 Jun 2016, 12:05 - CEST	Europe	0	negative
StWagnerAriana	RT @Good_Ant_Man: Wie das schlechte Wetter in GB die #BrexitAbstimmung beeinflusst #BrexitOrNot https://t.co/4hE0bdTsqc	23 Jun 2016, 12:05 - CEST	Germany	1	negative
MarkRJolly	RT @BarrySheerman: If you don't want our national values to be set by the Daily Mail don't vote for the narrowminded illiberal intolerantâ€¦	23 Jun 2016, 12:05 - CEST	Cranfield UniversityNr Bedford	11	negative
TwitSicherheit	RT @de_sputnik: INTERVIEW â€žIrrationale Ã„ngsteâ€œ Wiener EuropaExperte: Briten werden fÃ¼r #Brexit stimmen https://t.co/XLI3xLSdPj #BrexitOrâ€¦	23 Jun 2016, 12:05 - CEST	Das Netz	17	negative
Bald_Iain86	Done #Brexit #VoteLeave https://t.co/1sUzLsUoaz	23 Jun 2016, 12:22 - CEST	Rhyl, Wales	0	positive
PietroBjorn	Di che parliamo quando parliamo di Brexit? Guida alla notizia del giorno | Left https://t.co/vyYhMGu8Yy	23 Jun 2016, 12:22 - CEST	Cosenza, IT	0	negative
Kantox__es	RT @expansioncom: Los britÃ¡nicos cambian sus libras por euros y dÃ³lares antes del referÃ©ndum del Brexit https://t.co/F5EYQSHWoP	23 Jun 2016, 12:22 - CEST	London, England	53	neutral
mad_ashleigh	RT @internetought: rt'ing this as a PSA because ben still thinks "brexit" is some sort of breakfast sandwich https://t.co/0AQShPZjPf	23 Jun 2016, 12:22 - CEST	Glasgow, Scotland	2	positive
Tocqueville53	RT @AlexandreLoubet: Dangers du #Brexit sont connus: tunnel Manche rebouchÃ©, pluie sauterelles, Ã¨re glaciaire, RoyaumeUni Ã la dÃ©rive dansâ€¦	23 Jun 2016, 12:22 - CEST		17	negative
crazycatz2013	RT @LeaveEUOfficial: PLEASE WATCH and #Retweet â€“ and remember to #VoteLeave for our independence! #EUref #Brexit https://t.co/iAhmH51v8r	23 Jun 2016, 12:22 - CEST		697	positive
vl_n72	RT @aofxru: Ð¢Ð¾Ñ€Ð³ÑƒÐµÐ¼ Ð½Ð° #Brexit! Ð”ÐµÐ»Ð°Ð¹ Ð´ÐµÐ½ÑŒÐ³Ð¸ Ñ• Ð½Ð°Ð¼Ð¸ Ð¿Ñ€Ð¸Ñ•Ð¾ÐµÐ´Ð¸Ð½Ñ•Ð¹Ñ•Ñ• Ñ•ÐµÐ³Ð¾Ð´Ð½Ñ• Ðº Ð±ÐµÑ�Ð¿Ð»Ð°Ñ‚Ð½Ð¾Ð¼Ñƒ Ð·Ð°Ð½Ñ�Ñ‚Ð¸ÑŽ! https://t.co/yQrkjHhFym #aofx https://t.â€¦	23 Jun 2016, 12:22 - CEST	ÐœÐ¾Ñ•ÐºÐ²Ð°	269	positive
NKnow7	RT @Carina3603: #Brexit à¸¡à¸²à¸ˆà¸²à¸�à¸�à¸²à¸£à¸ªà¸™à¸˜à¸´à¸„à¸³à¸‚à¸à¸‡ Britain/British + Exit	23 Jun 2016, 12:22 - CEST	Naverland	14	negative
SportTalkBrian	RT @RT_com: URGENT: Final #Brexit poll puts â€˜Remainâ€™ at 52%, â€˜Leaveâ€™ at 48% â€“ Ipsos MORI for Evening Standard https://t.co/tf8W8lUdMJ	23 Jun 2016, 12:22 - CEST	Bel Aire, KS, USA	21	neutral
escklhen	RT @ShujaRabbani: All I'm going to tweet about is #Brexit. If you #iVoted, vote your choice in previous poll tweet. To #BrexitOrNot? #EUrefâ€¦	23 Jun 2016, 12:22 - CEST	North Carolina	51	positive
albericguigou	RT @Raphael_Rougier: Don't go brexit my heart! https://t.co/NWBZMjgegF	23 Jun 2016, 12:22 - CEST	Paris, London	1	negative

KellieRoseWick	RT @ArsTechnicaUK: #Brexit: Brussels tech folk fear possible UK vote to leave European Union https://t.co/lyI8W7AvNF by @BrusselsGeek httpsâ€¦	23 Jun 2016, 12:22 - CEST	Texas, USA	6	positive
gegan1987	RT @RT_com: URGENT: Final #Brexit poll puts â€˜Remainâ€™ at 52%, â€˜Leaveâ€™ at 48% â€“ Ipsos MORI for Evening Standard https://t.co/tf8W8lUdMJ	23 Jun 2016, 12:22 - CEST		21	neutral
Agenzia_Ansa	LE FOTO ANSA Brexit, la Gran Bretagna al voto https://t.co/PhJv3amwcW https://t.co/UWaohnZdVV	23 Jun 2016, 12:22 - CEST	Via della Dataria, 94 - Roma	0	neutral
golub	'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 12:22 - CEST		0	positive
elgorbachev	RT @business: Today is the day when Britain decides on its 43year membership of the EU https://t.co/vMFzBNKXst #Brexit https://t.co/qvMOHXâ€¦	23 Jun 2016, 12:22 - CEST		9	neutral
KeiuCrayons	RT @caitlinmoran: Best Brexit piece yet, by @paulmasonnews: "Real working class rebellions tend not to be run by the Establishment": https:â€¦	23 Jun 2016, 12:22 - CEST	Estonia	462	neutral
alexfutbol76	RT @CunadoDeTuiter: Lo del Brexit es algo que deberÃamos votar todos los europeos. Vamos, digo yo.	23 Jun 2016, 12:22 - CEST	Cartagena City, ciudad sin ley	119	positive
frankjacobsnl	RT @AutoWeek: #Brexit? 7 redenen om tegen te zijn: https://t.co/YK7PeKxcYq	23 Jun 2016, 12:22 - CEST	Almere, Netherlands	1	negative
empresasve	MÃ‰XICO: DespuÃ©s del Brexit, Â¿quÃ© otros riesgos enfrentarÃ¡ el precio del petrÃ³leo? â€¦ https://t.co/znQtBweneP #5estrellas â˜…â˜…â˜…â˜…â˜…	23 Jun 2016, 12:22 - CEST	Caracas, Venezuela	0	negative
ritsa68	Dazebao News Sindaco di Londra: La Brexit sarÃ un "punto di svolta nella storia del nostro Paese" https://t.co/1AM3E0wlqi	23 Jun 2016, 12:39 - CEST		0	neutral
kings_lunefish	RT @nhk_news: ã€ã,¤ã,®ãƒªã,¹å›½æ°'æŠ•ç¥¨ã€'ã,¤ã,®ãƒªã,¹ã§è¡Œã,ã,Œã,‹é›¢è„±ã®è³›å¦ã,'å•ã•†å›½æ°'æŠ•ç¥¨ã¯ã¾ã,,ãªãæŠ•ç¥¨ãŒå§‹ã¾ã,Šã¾ã™ã€,æœ€æ–°ã•®ä¸–è«–èª¿æŸ»ã§ã¯æ®‹ç•™ãƒ»é›¢è„±åŒæ–¹ã®æ"¯æŒãŒãŒããã£æŠ—ã€äº^æ–-ã,'è¨±ã•ãªã„æƒ…å‹¢ã¨ãªã£ã¦ã„ã¾ã™ã€, https://t.co/pwn3BrPkXT https://t.câ€¦	23 Jun 2016, 12:39 - CEST	ç•'ãƒ‹å±…ãƒªãƒžã,¹	363	positive
Ulillillysses	" Mr. Brexit "	23 Jun 2016, 12:39 - CEST		0	neutral
b_escriva	ReferÃ©ndum del 'Brexit', en directo https://t.co/f7wswCEmjJ vÃa @elperiodico	23 Jun 2016, 12:39 - CEST	Paterna, Comunidad Valenciana	0	negative

nigelco75	Not that I needed any convincing to vote #Remain but John Oliver being awesome about Brexit is well worth a watch https://t.co/97f2zDSWQy	23 Jun 2016, 12:39 - CEST	Reading	0	negative
tintodog	RT @Farmers4Britain: Don't rely on someone else's vote to change the course of history make sure you go out and cast yours! #voteleave #bâ€¦	23 Jun 2016, 12:39 - CEST		48	positive
IreneFregonese	Ansia #brexit	23 Jun 2016, 12:39 - CEST	Trento, Trentino-Alto Adige	0	negative
maramagutlapig	RT @business: Today is the day when Britain decides on its 43year membership of the EU https://t.co/vMFzBNKXst #Brexit https://t.co/qvMOHXâ€¦	23 Jun 2016, 12:39 - CEST	where internet speed is a joke	51	neutral
peterjitter	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 12:39 - CEST	Bristol, England	5076	positive
CopiaWealthTax	George Soros wrong on Brexit and UK economy, says City economist https://t.co/tMyZc7u3bk	23 Jun 2016, 12:39 - CEST	West Midlands | Wolverhampton	0	negative
Addicted4truth	RT @Pilotos000: ÎºÎ±Î½Î¿Î½Î¹ÏƒÏ„Îµ Î½Î± Î³Î¹Î½ÎµÎ¹ ÎºÎ±Î½Î± Brexit Î¼Î±Î»Î±ÎºÎµÏ‚, Îº Î½Î± Ï‡Î±ÏƒÎµÎ¹ ÏƒÎµ Î±Î¾Î¹Î± Î· Î²Î¹Î»Î± Î¼Î¿Ï… ÏƒÏ„Î¿ Î›Î¿Î½Î´Î¹Î½Î¿ ÎºÎ±Î¹ Î¿Î¹ Î±Î³Î³Î»Î¹ÎºÎµÏ‚, Î¼Î¿Ï… Î»Î¹ÏÎµÏ‚, Ï€Î¿Ï… Ï„Î¹Ï‚ ÎµÎ²Î³Î±Î»Î± Î±â€¦	23 Jun 2016, 12:39 - CEST	Î˜ÎµÏƒÏƒÎ±Î»Î¿Î½Î¯ÎºÎ·, ÎšÎµÎ½Ï„Ï•Î¹ÎºÎ® ÎœÎ±ÎºÎµÎ´Î¿Î½Î¯Î±	1	negative
ter_rob	RT @colombi_silvano: Io mi auguro che vinca Brexit cosi' da poter mandare affanculo questa europa	23 Jun 2016, 12:39 - CEST		1	negative
mark24823687	RT @mundaufmachen: #iVoted : #BREXIT! TODAY Go to your local polling station and #VoteLeave! #TakeControl #ProjectHope #IndependenceDay httâ€¦	23 Jun 2016, 12:39 - CEST	UK Hull	211	positive
ItalianoAquila	RT @RaiNews: Corrono le borse, cala lo spread https://t.co/MneG4iLoWC	23 Jun 2016, 12:39 - CEST	Italy	4	neutral
_johnsmith_y2k	anyone undecided #leave #remain #brexit https://t.co/SyghpUz5Ws	23 Jun 2016, 12:39 - CEST		0	negative
tomstaniford	@BenMurrells it's like you have no idea of how to use Google? https://t.co/1CvDrtWEGq	23 Jun 2016, 12:39 - CEST	Exeter & tom-staniford.co.uk	0	neutral
JuuMantelet	RT @OuestFrance: Brexit. Ouverture des bureaux de vote pour le rÃ©fÃ©rendum sur l'UE https://t.co/5xePHEwlnT https://t.co/qHgImrA2Pk	23 Jun 2016, 12:39 - CEST		6	negative
BrendaQ222	Does #DumbDonald now know what Brexit is?	23 Jun 2016, 12:39 - CEST	NYC	1	negative

CunadoDeTuiter	RT @PepeCavite: @CunadoDeTuiter seee...y si gana el Brexit y se piran que se lleven tambiÃ©n su idioma de nuestros colegios	23 Jun 2016, 12:39 - CEST	EspaÃ±a	1	positive
mariamarfer	URGENT: Final #Brexit poll puts â€˜Remainâ€™ at 52%, â€˜Leaveâ€™ at 48% â€“ Ipsos MORI for Evening Standard https://t.co/Yc7iqlHRCA via @RT_com	23 Jun 2016, 12:39 - CEST	Venezuela	0	neutral
FunGuerillaz	RT @jfarchy: Today's viewing... John Oliver on #Brexit for some much needed sense and humour https://t.co/dJayqm7KLP	23 Jun 2016, 12:56 - CEST	Location : Right Behind You !	7	positive
AshBarratt1984	RT @jenny_wren_01: Vote cast â⍰Œ #ivoted to LEAVE the European Union #euref #Brexit	23 Jun 2016, 12:56 - CEST		6	positive
tanerozarslan	Brexit coÅŸkusunun yaÅŸanmasÄ± Ã§ok uzun vadeli olmasa da zayÄ±flayan ABD bÃ¼yÃ¼me tahminleri geliÅŸen piyasalarÄ±n en Ã¶nemli kozu olacak.	23 Jun 2016, 12:56 - CEST	istanbul	0	positive
glenmorris56	RT @LouiseMensch: BBC News Suppressed British Drivers Attacked in Calais By Migrants Before #EUReferendum https://t.co/g02cPNdyKw #Brexit #â€¦	23 Jun 2016, 12:56 - CEST		198	negative
RobkNews	RT @patent: #patents in @NYTimes: "Democratic Party, â€˜Brexit,â€™ N.B.A. Draft: Your Thursday Briefing" by ADEEL HASSAN https://t.co/pRv1gINPaJ	23 Jun 2016, 12:56 - CEST	Windsor , Ontario	2	neutral
vlasinac	RT @LeaveEUOfficial: Today, we turn our backs on a failing political project and reenter the world! #EURef #Brexit https://t.co/L6kwJTW7A2	23 Jun 2016, 12:56 - CEST		207	positive
aeon456	RT @TelePolitics: Polling station ordered to take down â€˜Impartialâ€™ England Flags https://t.co/5JNHoTuBlG #EUref https://t.co/A53QcMXqiM	23 Jun 2016, 12:56 - CEST	UK	4	neutral
agrapeplace2b	The latest Heard It Through The Grapevine! https://t.co/DzijcX0JsG #wine #brexit	23 Jun 2016, 12:56 - CEST	Virginia	0	neutral
yleuutisvahti	@muusisilta Matias, voit tilata Uutisvahtisovelluksesta #brexitnotifikaatiot. Saat notskun aina heti kun uutta. https://t.co/F9plQTG3AC	23 Jun 2016, 12:56 - CEST		0	neutral
James_J_Marlow	Another reason to vote #Brexit https://t.co/lUO7wUqfK7	23 Jun 2016, 12:56 - CEST	London and Jerusalem	0	neutral
marciehatter	RT @SteveMaggs: A typical BREXIT voter? 'Only hate keeps me alive....' #voteremain #doctorwho #deadlyassassin https://t.co/bNBY0urQoH	23 Jun 2016, 12:56 - CEST		1	negative
AlexJohnson1990	RT @Nnamdi_ES_Okoye: #VoteLeave for my children and their families to prosper #Brexit https://t.co/fbnIW2sDle	23 Jun 2016, 12:56 - CEST	Worcester	112	positive
pedro_crd	SerÃa muy interesante tener la opiniÃ³n de Maradona sobre el Brexit.	23 Jun 2016, 12:56 - CEST	Patagonia Argentina	0	positive

DoGeFa	RT @cestrosiOff: Et des milliers de votes par correspondance se perdent https://t.co/NWY0t6DBhr #Brexit @Walter_VH_ @pierrejovanovic @Nigelâ€¦	23 Jun 2016, 12:56 - CEST		1	negative
Ga_ia1	E comunque, ultimo sondaggio: "Remain" in testa al 52%... #brexit	23 Jun 2016, 12:56 - CEST		0	negative
AlexiaTaub	Avant une visite en Ecosse, Donald Trump se dit favorable au Â« Brexit Â» Le Monde https://t.co/jS8JXPsQTe	23 Jun 2016, 12:56 - CEST		0	positive
thepaleblood	RT @Carina3603: à¸«à¸¥à¸²à¸¢à¸„à¸™à¸⍰à¸¥à¹ˆà¸²à¸§à¸§à¹ˆà¸² #EURef #Brexit à¸ˆà¸°à¹€à¸›à¹‡à¸™à¸•à¸²à¸£à¸¥à¸‡à¸›à¸£à¸°à¸Šà¸²à¸¡à¸•à¸´à¸„à¸£à¸±à¹‰à¸‡à¸ªà¸³à¸„à¸±à¸⍰à¸‚à¸- à¸‡à¸ªà¸«à¸£à¸²à¸Šà¸- à¸²à¸“à¸²à¸ˆà¸±à¸⍰à¸£à¹ƒà¸™à¸Šà¸±à¹ˆà¸§à¸Šà¸µà¸§à¸´à¸•à¸™à¸µà¹‰à¹€à¸¥à¸¢à¸⍰à¹‡à¸§à¹ˆà¸²à¹„à¸”à¹‰ à¹€à¸žà¸£à¸²à¸°à¸¡à¸±à¸™à¸ˆà¸°à¸⍰à¸³à¸«à¸™à¸”à¸Šà¸°à¸•à¸²à¹•à¸¥à¸°â€¦	23 Jun 2016, 12:56 - CEST	Hunter's dream	48	positive
pnani456	RT @AJInsight: Too Cheap #Brexit has hammered #FTSE so hard 16 of 100 stocks yield >5%... not even 1 #DJIA stock > 4.5%. Buy #UK https://t.â€¦	23 Jun 2016, 12:56 - CEST		2	negative
jfp10	Do the Math: An Economist's Guide to Brexit Bloomberg for iPad https://t.co/yNnyDSfWQm	23 Jun 2016, 13:13 - CEST	ÃœT: -0.188389,-78.487649	0	positive
Agitpress	Droht heute Nacht der #Brexit ? https://t.co/YnKtA1CaBN https://t.co/0I7vuOvvUc	23 Jun 2016, 13:13 - CEST		0	neutral
ArielleABerger	Honestly, is it super weird that I can't sleep because of #brexit? Like it's 4am. I couldn't even focus on Kung fury and I love that shit.	23 Jun 2016, 13:13 - CEST		0	negative
HainesWattsLds	Today is a once in a generation referendum what will you be voting for? #EUReferendum #Brexit	23 Jun 2016, 13:13 - CEST	Leeds, England	0	positive
steph_arellano	RT @washingtonpost: What is Brexit? The complete guide to Britainâ€™s E.U. drama for confused nonEuropeans. https://t.co/UvSTeRLYKJ	23 Jun 2016, 13:13 - CEST	Santiago, Chile	17	negative
rielcano	Puedes leer los Ãºltimos anÃ¡lisis de @_ignaciomolina sobre #Brexit en nuestro especial: https://t.co/hZun5KJOAa https://t.co/Y4uAB3ylYp	23 Jun 2016, 13:13 - CEST	Madrid, Spain	0	positive
StourbridgeNews	Brexitbacking Dudley MEP targeting the undecided in final push for votes: BREXITbacking Dudley MEP Bill Eth... https://t.co/acfM7n9Fj3	23 Jun 2016, 13:13 - CEST		0	neutral
Actus_Culture	Le Brexit, un Â«suicideÂ» pour Emma Thompson et Alex Taylor https://t.co/HoqaRj5TBr #culture	23 Jun 2016, 13:13 - CEST	MontrÃ©al, QuÃ©bec	0	neutral

zainaconda	Brexit referendum today. if Boris Johnson's (UK's Donald Trump) #VoteLeave wins, Cameron will step down.... https://t.co/GZtMReujdT	23 Jun 2016, 13:13 - CEST	...far from the madding crowd~	0	positive
Iamthetoecutter	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 13:13 - CEST	DIRTY south FLA	170	positive
tassosbilliouris	RT @Kathimerini_Cy: #Brexit ÏˆÎ·Ï†Î¯Î¶ÎµÎ¹ Î· Ï€Î»ÎµÎ¹Î¿ÏˆÎ·Ï†Î¯Î± Ï„Ï‰Î½ Î’Ï⍰ÎµÏ„Î±Î½ÏŽÎ½ #referendum https://t.co/k6ryPkE7LQ https://t.co/D7bXG09pNY	23 Jun 2016, 13:13 - CEST	Athens	6	neutral
KazzJenkins	I wonder if #IDS was carrying out a cunning plan when he left the DWP? Hoping for more power if Brexit won?	23 Jun 2016, 13:13 - CEST		0	positive
WorldGardeners	RT @WorldGardeners: Together we can make Britain 'Great' again by #VoteLeave today defying all scaremongering #Brexit #LeaveEU #EUref	23 Jun 2016, 13:13 - CEST	United Kingdom	2	positive
TerzoDiritto	RT @La7tv: Claudio Borghi (Lega): "In una democrazia Ã¨ il popolo che deve poter scegliere, non i tecnocrati." #Brexit https://t.co/rYN5aLgâ€¦	23 Jun 2016, 13:13 - CEST	Roma	4	negative
korusconsult	The latest KORUSCONSULT tÃ¤glich! https://t.co/T8SFcvQMzE #cloud #brexit	23 Jun 2016, 13:13 - CEST	Otterfing	0	negative
edpenington	@dril when will your reveal your opinion on Brexit?	23 Jun 2016, 13:13 - CEST	London, England	0	neutral
Actus_Culture	Plus de 96% des artistes britanniques opposÃ©s au Brexit https://t.co/SF1b0nJsff #culture	23 Jun 2016, 13:13 - CEST	MontrÃ©al, QuÃ©bec	0	negative
Andym6769	RT @WSJ: France slows eurozone economic rebound amid â€˜Brexitâ€™ uncertainty https://t.co/ftm7FhBcnk	23 Jun 2016, 13:13 - CEST	Northern Ireland	15	negative
neilwalton26	RT @rwainwright67: Same view repeated time and again by European as well as UK security chiefs https://t.co/MkY7UfZODC	23 Jun 2016, 13:13 - CEST	Fleet, England	4	neutral
m0rpheouz	RT @NovaShpakova: Wishing you the very best #UK you're just yards away from the finish line, #Brexit! From your neighbors 'across the ponâ€¦	23 Jun 2016, 13:30 - CEST		3	neutral
nareshdixit82	The latest The Naresh dixit Daily! https://t.co/u5ZJqKDy0k Thanks to @DilipGhoshBJP @being2shubham @Vijendradt #brexit #brexitornot	23 Jun 2016, 13:30 - CEST	Bengaluru South, Karnataka	0	neutral
Al_roooh2	RT @CNBCArabia: Ø§Ù„Ù†Ù•Ø· Ù…Ø±ØªÙ•Ø¹ Ù…Ø¹ ØªÙ⍰Ø§Ø¤Ù„ Ø§Ù„Ù…Ø³ØªØ«Ù…Ø±ÙŠÙ† Ø¨Ø§Ù†ØªØµØ§Ø± Ø£Ù ˆØ±Ù ˆØ¨Ø§ Ù⍰ÙŠ Ø¨Ø±ÙŠØ·Ø§Ù†ÙŠØ§ https://t.co/PltykXQU9I #CNBCØ¹Ø±Ø¨ÙŠØ© #BREXIT	23 Jun 2016, 13:30 - CEST	kuwait	5	positive

Monic_Laara	Pese a lluvias, continÃºan elecciones sobre "brexit" en Reino Unido https://t.co/WEKSEgkGX5	23 Jun 2016, 13:30 - CEST	Jalapa, Tabasco	0	neutral
CynthiaStillBB	RT @tanker070: To my British friends: "Today it's now or never" It's time to liberate your country from the EUSSR! #Brexit #VoteLeave #EU	23 Jun 2016, 13:30 - CEST		4	positive
Bismarck_NL	RT @JBwebpm: If you are unsure of today then please think carefully for tomorrow #Brexit https://t.co/k7X8ERMefp	23 Jun 2016, 13:30 - CEST	The Netherlands	5	negative
Ibe_ch05	RT @chuksoleka: @NetworksManager While @David_Cameron allows UK citizens freedom to decide on #Brexit ;he supports Nigeria killings of #Biaâ€¦	23 Jun 2016, 13:30 - CEST		16	negative
bigchap57	RT @DavidJo52951945: RT Please take a pen to the polling station with you tomorrow & donâ€™t use a pencil #Brexit https://t.co/OYnrUyxu95	23 Jun 2016, 13:30 - CEST	ulster	631	neutral
Fitness4London	@CambridgeGreens Wetherspoons guy is not getting another penny of my money ever! #TimMartin #Wetherspoons #Brexit	23 Jun 2016, 13:30 - CEST	London, UK	0	negative
ToGovern	How will you vote on #Brexit? Find out how other voters say they will https://t.co/cgXiYASiMu https://t.co/nIRGPNomve	23 Jun 2016, 13:30 - CEST	The Boardroom, London â„¢	0	negative
unitaonline	#Brexit Urne aperte nel Regno Unito. E spunta un nuovo sondaggio https://t.co/zVnPzohyQo	23 Jun 2016, 13:30 - CEST		0	positive
satirist_indian	RT @tcmccarthy_: #Remain voters are pushing the #UK off a cliff. Vote #leave. #Brexit https://t.co/xuVzGKkmg4	23 Jun 2016, 13:30 - CEST	India	1	negative
silvia_giancola	Ottimo post di Licia Corbolante #Brexit, #Bremain e la #crasi dei media italiani https://t.co/e6KF8R2w24 @terminologia #terminologia #xl8	23 Jun 2016, 13:30 - CEST	Italy	0	negative
FinanzLinksAsia	â–¶ Sensex Closes Above 27000 Ahead Of Brexit Verdict; Nifty Up 66 Points: Indian shares rose sharply onâ€¦ https://t.co/xBTFzEtxCQ RTT	23 Jun 2016, 13:30 - CEST		0	neutral
BeThisBellBand	EU referendum: â€˜Leaveâ€™ & â€˜Remainâ€™ make final pitches day before Brexit polls open https://t.co/WADkyUeiCB	23 Jun 2016, 13:30 - CEST	Eureka, CA	0	neutral
Melody191064	RT @Welt_im_Chaos: Auch interessant: Der #Brexit ist laut #ZDF eine Entscheidung Ã¼ber die "Einwanderung".Von "Fluechtlingen" redet inzwischâ€¦	23 Jun 2016, 13:30 - CEST		14	neutral
Endyf	Our friends on the continent showing solidarity with the UK, let's not turn our backs on them! #VoteRemain https://t.co/vCpnPiZsp7	23 Jun 2016, 13:30 - CEST	UK - Bath & Portsmouth	0	negative
KevnRojjs	G7 podrÃa emitir comunicado si gana "Brexit" https://t.co/P3ry9PH7V0	23 Jun 2016, 13:30 - CEST	Tabasco	0	neutral
Juanro1212	RT @Bestinver: BeltrÃ¡n de la Lastra escribe sobre #Brexit en @elpais_economia https://t.co/BYH9dIUK0t	23 Jun 2016, 13:30 - CEST	Madrid, EspaÃ±a	4	NA

ron_payne11	RT @LeaveEUOfficial: PLEASE READ! 4 key arguments made by @StrongerIn were demolished last night. Know the facts before you vote! #EURef htâ€¦	23 Jun 2016, 13:47 - CEST		236	neutral
SocialKickme	The 'Brexit' referendum and 'Game of Thrones' aren't all that different https://t.co/zeGHiXC2yx	23 Jun 2016, 13:47 - CEST		0	negative
baldonedo6	RT @danielmateos: #Brexit o #Bremain...mucho en los mercados financieros en juego. Me acaban de decir que hay Hedge Funds costeando encueâ€¦	23 Jun 2016, 13:47 - CEST		2	negative
brenden_andeswr	RT @ShujaRabbani: All I'm going to tweet about is #Brexit. If you #iVoted, vote your choice in previous poll tweet. To #BrexitOrNot? #EUrefâ€¦	23 Jun 2016, 13:47 - CEST	Washington	658	positive
vabybabnsuu	RT @ShujaRabbani: #EUref is still trending. What's your #iVoted choice on #Brexit? To #BrexitOrNot? Vote on previous tweet. #EUreferendum #â€¦	23 Jun 2016, 13:47 - CEST	Nevada	217	negative
AndreTomer	RT @RaiPortaaPorta: Stasera alle 21:25 su @RaiUno Speciale #portaaporta #Brexit https://t.co/GPNLZTCFOe	23 Jun 2016, 13:47 - CEST		4	positive
ReImagineGas	RT @FraserNelson: UPDATE: Chances of #Brexit now down to 15% according to The Spectator's live odds tracker: https://t.co/IWshaJnO9l https:â€¦	23 Jun 2016, 13:47 - CEST	London â€¦and everywhere else	10	positive
szekelyf	RemÃ©lem, Ãgy is marad. https://t.co/pfjV63oCdS	23 Jun 2016, 13:47 - CEST	Budapest	0	positive
coldfusionMBE	Exactly what the brexit supporters want you to do. Trade everything for a nebulous future for your children. Idiots. https://t.co/TZcPCMwhll	23 Jun 2016, 13:47 - CEST	London	0	negative
Twi_Terr	RT @V_of_Europe: Brexit spreads across Europe: Italy, France, Holland and Denmark ALL call for referendums https://t.co/AFwuc5icLp https://â€¦	23 Jun 2016, 13:47 - CEST	Noord-Brabant, Nederland	260	neutral
Eric_Clement	RT @francetvinfo: [QUIZ] Ces people anglais sontils pour ou contre le #Brexit ? Testez vous sur l'actu âž¡ https://t.co/HwFTDxUckS https:/â€¦	23 Jun 2016, 13:47 - CEST	MontrÃ©al	2	negative
john_geoffrey	Another good video with all the info about what a #Brexit would entail https://t.co/6b31Ag1z6O	23 Jun 2016, 13:47 - CEST	London, UK	0	positive
PeterWendtWhere	#Brexit, for the WIN! Vote LEAVE	23 Jun 2016, 13:47 - CEST	Coastal NC	0	positive
miss_s_b	RT @thalestral: Frustrated to find a Lib Dem leaflet through my door promising that Brexit would lead to Scottish independence in 2 years.â€¦	23 Jun 2016, 13:47 - CEST	Brighouse, West Yorkshire	1	negative
berimaamo1	So UK will rather be slaves to america than be a brother to their european brothers? #brexit	23 Jun 2016, 13:47 - CEST	the netherlands	0	negative
HarridgePike	RT @TelePolitics: Polling station ordered to take down â€˜Impartialâ€™ England Flags	23 Jun 2016, 13:47 - CEST	North Yorkshire	16	neutral

	https://t.co/5JNHoTuBlG #EUref https://t.co/A53QcMXqiM				
Paulxxxxx	@JTeesdale1 Hi James. "Its looking excellent". Do you know something I don't know? i.e., that is excellent news for Brexit?	23 Jun 2016, 13:47 - CEST	UK	0	positive
Hook_Echo9	I say go and good riddance #Brexit=>On eve of defining British EU referendum, rivals race for final votes https://t.co/4sA0tck0pk @Reuters	23 Jun 2016, 13:47 - CEST	North Alabama	0	neutral
ASimpsonEY	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 13:47 - CEST	Winnipeg, Manitoba	373	positive
barbuho	Si se van de la UE a ver a donde van a mandar a sus hordas de borrachos!! #Brexit	23 Jun 2016, 13:47 - CEST		0	negative
SharanBurrow	RT @equaltimes: Is voting for #Brexit worth the risk of losing #jobs, #rights and #wages? https://t.co/gq0NfyLufr https://t.co/w512UNXNpr	23 Jun 2016, 14:04 - CEST		1	negative
MaryJurjo	RT @elconfidencial: Os recordamos que el Brexit podrÃa hacer que EspaÃ±a aporte mÃ¡s dinero del que recibe en la UE https://t.co/ranLXjYCBp #â€¦	23 Jun 2016, 14:04 - CEST	Valladolid, Castilla y LeÃ³n	11	positive
Tierdra	@intdemon Any new applicants to the EU do. I mean that if Scotland broke after brexit and negotiated to rejoin.	23 Jun 2016, 14:04 - CEST		0	negative
festivaldeparo2	RT @BrainandMoney: Forget BREXIT Just Trade with Trading levels ,NothingÂ else. https://t.co/0s1EbRUxzN https://t.co/payjP6emfY	23 Jun 2016, 14:04 - CEST		39	negative
Funkybanana75	RT @jackson_heather: Whatever your gender,ethnicity , social mobility,sexuality please remember to vote today ..whether #remain or #Brexitâ€¦	23 Jun 2016, 14:04 - CEST	yorkshire, uk	4	negative
LeeRoy5150	Just placed my vote #Brexit as long as you stand by your conviction there is no right or wrong answer #BritainDecides	23 Jun 2016, 14:04 - CEST	Luton Town	0	negative
anthonybiljana	RT @RT_com: #BREXIT outperforming #REMAIN but UK polls point towards Brussels. Live updates https://t.co/tf8W8lUdMJ @RTUKnews https://t.co/â€¦	23 Jun 2016, 14:04 - CEST		39	negative
Ciccio7_	RT @sole24ore: Brexit, ecco come si sono schierati i giornali inglesi https://t.co/HADAquGHO1 https://t.co/lFPjSGRY5S	23 Jun 2016, 14:04 - CEST	Ragusa Italy	14	neutral
Nacho_PoseC	RT @CunadoDeTuiter: Lo del Brexit es algo que deberÃamos votar todos los europeos. Vamos, digo yo.	23 Jun 2016, 14:04 - CEST		286	positive
FX_A_	RT @ashimizu1729: æŠ•ç¥¨æ™‚é–“ãŒåˆå‰7æ™‚ã‹ã‚‰åˆå¾Œ10æ™‚ç¾åœ°ã¨ãªã£ã¦ã„ã‚‹æœ¨æ›œæ—¥ã®è‹±å›½å›½æ°‘æŠ•ç¥¨ã§ã¯ã€ã“ã•®é–“ã€æŠ•ç¥¨çŠ¶æ³(Turnoutä»¥å¤–ä¾‹ãˆã°ã€Brexitã•«é–¢ã™ã‚‹ãƒ‡ã‚£ãƒ™ãƒ¼ãƒˆã‚„ã‚³ãƒ¡ãƒ³ãƒˆãªã©ã®æ”¾	23 Jun 2016, 14:04 - CEST		5	neutral

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PieroLatino	RT @suffragettecine: Together is better #nobrexit #Brexit #BrexitOrNot https://t.co/EAumVEWDje	23 Jun 2016, 14:04 - CEST		11	negative
UlaLaParis	RT @otr_press: El icono del dÃa @hberdichevsky https://t.co/lW9Ou3CokC https://t.co/zJjlmc3mr9	23 Jun 2016, 14:04 - CEST	Paris	2	neutral
naqiebhosseini	RT @JamesMelville: The Brexit campaign doesn't have any politician that would make it to the end of a Willy Wonka factory tour.	23 Jun 2016, 14:04 - CEST	Cardiff	3624	negative
KiwiKafir	RT @cuzzinharry: TheTimes today! #Brexit . https://t.co/hD5AceSzQ8	23 Jun 2016, 14:04 - CEST	New Zealand	21	positive
Daley4444	RT @LeaveEUOfficial: 'I'm mixed race, female, leftwing, a 19yearold student and yes, I really am voting for Brexit.' #EURef https://t.â€¦	23 Jun 2016, 14:04 - CEST	Goldthorpe	216	positive
omnivorist	Considering the weather in the South East, it looks like The Almighty might have decided to back #Brexit	23 Jun 2016, 14:04 - CEST	Gloucestershire UK	0	negative
SnowFreeThinker	RT @LouiseMensch: Roses are red, violets are blue, If you love Europe But not the EU #VoteLeave #Brexit and #TakeControl https://t.co/LR90Kâ€¦	23 Jun 2016, 14:04 - CEST		454	positive
animalister	RT @HubCrowdfunding: In or Out? It is ALL About the Brexit. Jeff Lynn of Seedrs Responds https://t.co/zNpDC6nLou #crowdfunding #startup	23 Jun 2016, 14:04 - CEST		1	negative
ivannamelnik	WSJ Ð¾ Brexit: ÑƒÐ´Ð°Ñ€Ð¸Ñ, Ð¿Ð¾ Ð�Ð¼ÐµÑ€Ð¸ÐºÐµ Ð¸ Ð¿Ð¾Ð¼Ð¾Ð¶ÐµÑ, Ð Ð¾Ñ•Ñ•Ð¸Ð¸ https://t.co/1iGqOFURXB	23 Jun 2016, 14:04 - CEST	Ð›ÑŒÐ² Ñ–Ð²	0	negative
andrzejmanka	Thunderstorms and flooding cause polling day travel disruption live https://t.co/1xw1OjH2j6	23 Jun 2016, 14:04 - CEST	London, England	0	negative
leooangeline	RT @DonChampionTV: Eager to see the results of the #Brexit vote today.	23 Jun 2016, 14:21 - CEST	naples fl	1	positive
SharonBowlesUK	RT @TheEconomist: #Brexit in brief: the 17 things you need to know before you vote today #EUref https://t.co/KKdYKSlpsq https://t.co/iHJqxsâ€¦	23 Jun 2016, 14:21 - CEST	UK	18	neutral
Avv_Natalina	RT @Internazionale: La prima volta della Brexit, il 5 giugno 1975. Le foto: https://t.co/0CdoOzATUX https://t.co/f8VQHmsP1x	23 Jun 2016, 14:21 - CEST	Crotone - Kr - Italia	15	positive
1stClown	FOR FUCK'S SAKE WHAT MORE DO YOU #BREXIT BASTARDS WANT? @IzzyTheRat1 @TheOlifant @PepA_2907 https://t.co/ijpppaFNC0	23 Jun 2016, 14:21 - CEST	England. Europe.	0	negative
craigorius	@sniffpetrol Although maybe the most Brexit car is a Tesla coming out of autopilot. "Take control".	23 Jun 2016, 14:21 - CEST		0	neutral

aaron_bwfc	RT @TheCraggus: Thanks to both sides of the #EUreferendum campaign, Britain is this guy. #Simpsons #Brexit #BetterIn https://t.co/JyXLZI5L6i	23 Jun 2016, 14:21 - CEST	Bolton	310	positive
__EEA	Freedom of movement enables students from all over the UK & EU to study abroad via the ERASMUS scheme Brexit would complicate this (1)	23 Jun 2016, 14:21 - CEST	london/ UoY	0	negative
FrozenLL	RT @DessinsSeldoon: C'est aujourd'hui le vote du #Brexit #BrexitOrNot https://t.co/hbklugHl3i https://t.co/ZSlIC2r9wI	23 Jun 2016, 14:21 - CEST		15	negative
Marcos77rueda	RT @norcoreano: 2016: El brexit vence, Reino Unido sale de Europa. Inmigrantes ilegales espaÃ±oles saltan la valla de Gibraltar para comprarâ€¦	23 Jun 2016, 14:21 - CEST	MÃ¡laga	76	negative
dfpamk	RT @ShujaRabbani: #EUref is still trending. What's your #iVoted choice on #Brexit? To #BrexitOrNot? Vote on previous tweet. #EUreferendum #â€¦	23 Jun 2016, 14:21 - CEST	Pennsylvania	494	negative
jacobinmag	Rightwing forces are leading both sides of the Brexit debate. https://t.co/qfLZMNINmQ	23 Jun 2016, 14:21 - CEST	New York City	1	neutral
ForexAnalytics1	#AUD 240 stepping up nicely not just #Brexit #TheseLinesWork Please RT https://t.co/aHF8jDxKZd	23 Jun 2016, 14:21 - CEST	United Kingdom	0	neutral
coachbryer	RT @steveruffley: After all the #brexit hype, it comes down to this https://t.co/atoytn9hIU	23 Jun 2016, 14:21 - CEST		1	negative
AndreeBaril	RÃ©fÃ©rendum Brexit: le RoyaumeUni retient son souffle https://t.co/fulnwD6Txd via @LeDevoir	23 Jun 2016, 14:21 - CEST		0	positive
SoyEdds	Por si quieres hacer apuestas en los mercados antes de que pase el #Brexit / No brexit https://t.co/4VBNcrRIhL	23 Jun 2016, 14:21 - CEST	EspaÃ±a Madrid	0	negative
DeCatherin	RT @jeanlassalle: Et si au fond le Brexit Ã©tait le dÃ©but d'une nouvelle Ã¨re pour l'UE ? Une prise de conscience #BrexitOrNot https://t.co/â€¦	23 Jun 2016, 14:21 - CEST	Bretagne , France	18	negative
retweetingles	RT @2geckosjavea: How many people remember the 1973 #Brexit referendum? 67% for 'Remain'. #BrexitOrNot	23 Jun 2016, 14:21 - CEST		1	negative
f0ster	RT @MylesUdland: Brexit supporters are urging voters to take pens to polling stations over fears of an MI5 conspiracy https://t.co/UKL0H83Mâ€¦	23 Jun 2016, 14:21 - CEST	Los Angeles	1	negative
BWPublications	RT @JohnKremer: Social media companies really want you to know that it's 'Brexit' voting day: LONDON â€” On the day of the his... https://t.â€¦	23 Jun 2016, 14:21 - CEST		1	positive
buzby69	@chopone92 @JordieStedz I've been an done the decent thing #Brexit #bottombox	23 Jun 2016, 14:21 - CEST	St Matthews,Leicester,ENGLAND	0	neutral
MutedOptimist	RT @Barnsley: Brexit* *What an overweight Barnsley lass does when she sits	23 Jun 2016, 14:38 - CEST	Oxford	302	positive

	on a white plastic garden chair. #barnsleyisbrill				
nickvsx	Apparently people of my gen are inclined to #Brexit appeasement was wrong in 1930's & wrong today. Vote for against fear vote #Remain	23 Jun 2016, 14:38 - CEST	Tweetland	0	negative
Mgt0wer	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 14:38 - CEST	England, United Kingdom	5385	positive
doggywoggydooda	RT @GraTire: The People's Convention want #Irexit Referendum & supports #Brexit. We ran out of flyers on Saturday, big demand. https://t.coâ€¦	23 Jun 2016, 14:38 - CEST	Earth	14	negative
PH_RG	RT @OuchikhKarim: DDay. Ã€ quand le dÃ©barquement de la dÃ©mocratie rÃ©fÃ©rendaire sur les plages de France ? #Brexit	23 Jun 2016, 14:38 - CEST	Monaco	17	neutral
rosiewhitehouse	RT @b_judah: My @POLITICOEurope #ReferendumRoatrip rolls into Romford. Rage, Romanians and rampant conspiracy theories. https://t.co/ZMFf4Lâ€¦	23 Jun 2016, 14:38 - CEST	London, England	8	negative
phy_alysia	RT @HappyLionTweet: #Song for this important day: Should I stay or should I go now? #Brexit MT @PunKandStuff #TheClash https://t.co/Ln1qâ€¦	23 Jun 2016, 14:38 - CEST	Silicon Valley	37	negative
_MarketEdge	@Bedalehall if #Brexit vote = leave does that mean our colleagues from the continent can no longer drink @YorkshireGin?? @carolinemace0	23 Jun 2016, 14:38 - CEST	USA, UK, Brasil, Switzerland	0	positive
myramyre	Oya, skrng ya referendum brexit	23 Jun 2016, 14:38 - CEST	surabaya	0	NA
ster69	â€œFactChecking Brexit: The Conclusionâ€• by @hughhancock https://t.co/vNTZyEHHMp	23 Jun 2016, 14:38 - CEST	Obscure body in the S-K system	1	neutral
samuelabascal96	RT @norcoreano: 2016: El brexit vence, Reino Unido sale de Europa. Inmigrantes ilegales espaÃ±oles saltan la valla de Gibraltar para comprarâ€¦	23 Jun 2016, 14:38 - CEST	EspaÃ±a	191	negative
GeeMAn_0821	#Brexit . How will it end ? https://t.co/56S8dmBIeq	23 Jun 2016, 14:38 - CEST	Everywhere	0	neutral
aiolozil	RT @albertopradilla: No entiendo por quÃ© los espaÃ±oles no estÃ¡n votando sobre el #Brexit si es algo que les afecta tambiÃ©n a todos.	23 Jun 2016, 14:38 - CEST	Zizur Nagusia (Navarra)	37	negative

kevinbantz	You're on your own $SPX FADE BREXIT and buy $VIX options https://t.co/iWNsAx3lqY	23 Jun 2016, 14:38 - CEST	Lake Havasu City, AZ	0	neutral
GlendaAhora	Buenos dÃas!#BritÃ¡nicos deciden su futuro y de la UniÃ³n Europea referendum #Brexit https://t.co/zlW0UdFkDW 28O0ioe https://t.co/NNdoG0uAOu	23 Jun 2016, 14:38 - CEST	Atlanta	1	positive
msaunders135	Britain is too great to vote for Brexit! Check out the important opinion piece by @Avaaz ED Ricken Patel: https://t.co/XJW305iFSi	23 Jun 2016, 14:38 - CEST		0	positive
PeopleEngineer	Sterling Rises to Record 2016 High During Brexit Vote https://t.co/GKyP8JkJAI @TIME https://t.co/SLASIRubg8	23 Jun 2016, 14:38 - CEST		0	positive
moore_patricia	RT @BluegillRises: Britain has given the world so much and must stand tall #VoteLeave #Brexit #EUref #IndependenceDay @Nigel_Farage httâ€¦	23 Jun 2016, 14:55 - CEST		13	positive
IMAPictures	RT @IntYogaDay: The Sign Of #Brexit How May Effect UK's BankingSystem, See From This Lined Up In A Que Today Itself ;) @BharatSolar_ https:â€¦	23 Jun 2016, 14:55 - CEST	Delhi Mumbai Kolkata Chennai	3	neutral
fnalcountd0wn	RT @BlitzQuotidiano: Brexit, gli antiEuropa dicono voto truccato dai servizi segreti https://t.co/tNcLx2kvRi	23 Jun 2016, 14:55 - CEST	Piddinia	2	negative
RedDave14	RT @brian_bilston: Here is an EU Referendum ballot paper which I have converted into a poem. https://t.co/QWTdQGjbEl #Brexit #bremain	23 Jun 2016, 14:55 - CEST	iPhone: 51.913742,-8.460602	0	negative
Repeal_the Act	RT @exsacerdotal: Dear #Remain with love from freedom loving people everywhere #Brexit #VoteLeave https://t.co/t4qoBY7pm3	23 Jun 2016, 14:55 - CEST		25	positive
harshkenz	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 14:55 - CEST		3661	positive
ShreyaSonu Holic	RT @iamsrk: I c this trend in News where leaving of someone or something is headlined as Rexit or Brexit.So if I leave from sumwhere am Iâ€¦	23 Jun 2016, 14:55 - CEST	Karachi, Pakistan	3661	positive
Ashok2038	RT @khjelmgaard: I'm holding out for the #BunniesAgainstBrexit https://t.co/eqKT5DjMKw #EUref	23 Jun 2016, 14:55 - CEST	Nepal	4	negative
rpvega	Very interesting #socialmedia sentiment analysis of #Brexit #EUreferendum #EUref https://t.co/ZvCZpiHRlL	23 Jun 2016, 14:55 - CEST	Dubai, UAE	0	positive
Z24nl	LIVE: Brits EUreferendum, wel of geen Brexit: James Bond is proEU, Basil Fawlty gaat ... https://t.co/Gu0xxwPn3y https://t.co/hvyFQpyJn2	23 Jun 2016, 14:55 - CEST	Amsterdam, Netherlands	0	NA
DGTrading101	Equities pretty quite here ahead of #Brexit ...good riddance, 2am can't come soon enough	23 Jun 2016, 14:55 - CEST	New Jersey	0	negative

CARLOPGUZMAN1	RT @AnonPress: If the UK media was more concerned with telling people the facts rather than what to do people might be a little less unsureâ€¦	23 Jun 2016, 14:55 - CEST	Xalapa	30	negative
sputnik_jp	#BREXIT ãŒã€Œ#ã‚²ãƒ¼ãƒ ãƒ»ã‚ªãƒ–ãƒ»ã‚¹ãƒ-ãƒ¼ãƒ³ã‚ºã€ã«æ‰“æ’ƒã‚’ä¸Žãˆã‚‹ https://t.co/b7UF2L4nyi https://t.co/6HiJu7ymsh	23 Jun 2016, 14:55 - CEST		0	positive
hitech_guru	Brexit Would Leave Germany Stranded Against Freeloading South https://t.co/cyj0Y1FD5R	23 Jun 2016, 14:55 - CEST	Toronto, Canada	0	positive
JakeNicholls45	RT @LouiseMensch: TNS poll likely voters #VoteLeave 49, #VoteRemain 42 #Brexit #ProjectHope https://t.co/ut0lz4xjtP	23 Jun 2016, 14:55 - CEST	Ipswich, UK	232	neutral
David52Stone	Yep old Ben got that right Hope Britain gets it right today #Brexit #MAGA https://t.co/LAnStX8GHX	23 Jun 2016, 14:55 - CEST	Georgia, USA	0	positive
mamitamumu	RT @todonoticias: Brexit: Ir a votar con su perro y sacarle una foto, una extraÃ±a tradiciÃ³n britÃ¡nica https://t.co/910VpBeLCB https://t.co/â€¦	23 Jun 2016, 14:55 - CEST	CABA Argentina	12	positive
choisser	RT @PatVPeters: Brexit : Decision Day https://t.co/V0OQEN76FC	23 Jun 2016, 14:55 - CEST		1	neutral
MyrvangVeronika	RT @RT_com: 'Hysteria and halftruth': Refugees will not disappear whatever the #Brexit vote outcome â€" charity https://t.co/w0Ed7EEgTG	23 Jun 2016, 14:55 - CEST	Earthling	5	negative
bookishsponie	RT @Avaaz: Let's make sure we're on the right side of history. Choose Love â•¤ #VoteRemain. #EURef #Brexit #StrongerIN https://t.co/hD6bWADGWA	23 Jun 2016, 14:55 - CEST	UK	234	negative
JoeGandelman	Brexit: good riddance or a new Europe? https://t.co/F0bma0lfQs	23 Jun 2016, 15:12 - CEST	San Diego, CA	0	negative
frenchfrill	RT @nigelshortchess: The most vicious, divisive, mendacious campaign will end today. Whatever the outcome, many people in the UK will be anâ€¦	23 Jun 2016, 15:12 - CEST		12	positive
Magu_mendez	RT @El_Universal_Mx: #QueNoSeTePase Encuentra aquÃ todo lo que debes saber sobre el #Brexit https://t.co/NDdE19pDEn	23 Jun 2016, 15:12 - CEST		5	negative
Col_Irrelevant	RT @WooTube: I had reasons to vote for #Brexit but they were massively overwhelmed by a strong need to crush racism & economic ideas of theâ€¦	23 Jun 2016, 15:12 - CEST	Europe	1	negative
Laia_5SOS	RT @assemblea: No referendumNo democracy #Brexit https://t.co/6Rsn9rrsof	23 Jun 2016, 15:12 - CEST		41	NA
canberra_soul	Brexit Poll Shows 80% Of Americans Think Britain Should Leave EU https://t.co/Yq75nKTGa9	23 Jun 2016, 15:12 - CEST		0	positive
cbchh	RT @Billdit: @CBCMorningShow @cbchh #Brexit "With Or Without You" https://t.co/c9r83HZ7le	23 Jun 2016, 15:12 - CEST		1	neutral
Mephist0paulus	RT @ElizabethHurley: Vote tomorrowwhatever your persuasion. I'm for #Brexit & promise to neither gloat nor whinge. But VOTE! https:â€¦	23 Jun 2016, 15:12 - CEST	Cleveland, OH	3424	negative
AurelieMelanie	RT @Daniel_Portman: https://t.co/hE3KJF1NFn Being put on the same list as James Bond and Hermione Granger made me feel quite cool. #Remainâ€¦	23 Jun 2016, 15:12 - CEST	RÃ©gion Parisienne	9	negative

clocktowerca	"World Leaders on 'Brexit' Vote" by THE NEW YORK TIMES via NYT https://t.co/Jn7BKIfbOe	23 Jun 2016, 15:12 - CEST		0	positive
BackofficeGP	RT @burgercomiteeu: Come on dear friends in the UK. Lead by example. Leave the EU! We are hoping for a #Brexit! Then a #Nexit.	23 Jun 2016, 15:12 - CEST	Nederland	16	positive
TeessideWoes	@jeremycorbyn twofaced hypocrite. How much is @GoldmanSachs paying you? #VoteLeave #Brexit	23 Jun 2016, 15:12 - CEST	#Teesside	0	positive
laublauDK	RT @yo_ELOQ: Please Britain vote to stay w us so we can hang and chill and have good old fun Europa times #Brexit #Bremain https://t.co/â€¦	23 Jun 2016, 15:12 - CEST	copenhagen v	1	negative
noralekzandr	RT @abc_es: Los Ãºltimos sondeos dan la victoria a la permanencia de Reino Unido en la UniÃ³n Europea https://t.co/OVpomIqCst #Brexit	23 Jun 2016, 15:12 - CEST		42	neutral
rynitw	"World Leaders on 'Brexit' Vote" by THE NEW YORK TIMES via NYT The New York Times https://t.co/NQ8PalSwDn	23 Jun 2016, 15:12 - CEST	Santiago de Chile	0	neutral
fabienchamblanc	#Brexit Harlem DÃ©sir (Affaires europÃ©ennes) sort de son silence: "Hollande verra Merkel avant le Conseil europÃ©en de mardi" #ministrefantome	23 Jun 2016, 15:12 - CEST	Paris	0	neutral
twhite4theclub	RT @brexshit: I'm voting #Brexit tomorrow because the EU want to replace our British Jesus with Zeus, sell us cheese with holes in & they sâ€¦	23 Jun 2016, 15:12 - CEST		2	negative
tyrelle123	RT @AMTrump4PRES: This is your future, believe it or notIslam NEVER invades to be equal but 2 DOMINATE! #Brexit #VoteLeave #BanIslam httpsâ€¦	23 Jun 2016, 15:12 - CEST	Audtralia	21	positive
Flemington455	RT @SputnikInt: If Britain goes: Three possible scenarios of #Brexit https://t.co/HrVGs9xLrx #BrexitOrNot https://t.co/ESLVEWShtD	23 Jun 2016, 15:12 - CEST	Sydney, New South Wales	13	negative
ciuffetellimass	Brexit: un dÃa de perros para votar https://t.co/OXnbvwHwlV	23 Jun 2016, 15:12 - CEST	CARACAS VZLA	0	neutral
kabarberita	BEI katakan Brexit tidak berdampak langsung bagi Indonesia https://t.co/VJ0H3rYgsJ	23 Jun 2016, 15:29 - CEST	South-East Asia	0	negative
Ilrestodelcaffe	Brexit? E quando mai ci sono entrati inÂ Europa? https://t.co/Fu5uPYCFWw https://t.co/i8oTTTAC0h	23 Jun 2016, 15:29 - CEST	Milano, Italia, Mondo, Ovunque	0	negative
smartaura	@CNBCi Verdict is #Brexit	23 Jun 2016, 15:29 - CEST	Worldwide	0	NA
Barbara531	RT @AMTrump4PRES: As muslim population overwhelms all of EuropeUK has a chance 2 take control. Will they have the courage? #Brexit https:/â€¦	23 Jun 2016, 15:29 - CEST	Virginia	55	positive
latikia	UK voters head to polls for Brexit referendum by via Stars and Stripes https://t.co/5PhylBEDDn	23 Jun 2016, 15:29 - CEST	22 km SSW of nowhere special	0	neutral
CNBCTV18Live	Brexit Voting Underway: DAX 10194.68 +1.23%: FTSE MIB 17772.83 +2.60%	23 Jun 2016, 15:29 - CEST	India	0	neutral

mainda	Sleepless night ahead! Referendum results guide: when to nap and the places to watch https://t.co/X1xEBjWYAp #brexit #referendum #alerts	23 Jun 2016, 15:29 - CEST	ÃœT: 52.191882,0.124641	0	neutral
knicks148	RT @barryap1: For Brexit Day, letâ€™s play my favorite game: Zoom in on a random patch of the UK and laugh at the place names. https://t.co/Oâ€¦	23 Jun 2016, 15:29 - CEST	New York	333	positive
TexanForTrump	Watching from across the pond! Vote out! Say NO to NWO! Let Turkey have your spot! #Brexit #VoteLeave #VoteOut	23 Jun 2016, 15:29 - CEST	God Bless America	0	positive
angelavaldowine	RT @Emol: #EmolTV | Las claves para entender las consecuencias del Brexit https://t.co/g2qZ6mLxsr https://t.co/hnn7On8iyo	23 Jun 2016, 15:29 - CEST	Chile	3	positive
dismantleeu	RT @FeistyDeanne: Another two votes for #Brexit that felt good. #iVoted #VoteLeave #TakeBackControl https://t.co/v8D1gRGmWX	23 Jun 2016, 15:29 - CEST		12	positive
ninobizzintino	RT @repubblicait: Brexit, i Cinque Stelle scaricano Farage: "L'Europa si cambia solo restando nell'Ue" https://t.co/oQI7GhahH5	23 Jun 2016, 15:29 - CEST	Reggio Calabria	13	neutral
EliasPalai	ÎšÎ±Î¹ ÏÏƒÏ„ÎµÏÎ± ÏƒÎ¿Ï… Î»ÎµÎ½Îµ Î¿Ï„Î¹ Ï‰Ï‚, Ï€Î¿Î»Î¹Ï„Î¹ÏƒÎ¼ÎÎ½Î¿Î¹ Î¬Î½Î¸ÏÏ‰Ï€Î¿Î¹ Ï„Î¿Ï… 21 Î±Î¹Ï‰Î½Î± Ï„Î± Î´Î¹Î±Î¶Ï•Î³Î¹Î± Î²Î³Î±Î¯Î½Î¿Ï…Î½ "Î²ÎµÎ»Î¿Ï•Î´Î¹Î½Î±"..#brexit	23 Jun 2016, 15:29 - CEST	Î›ÎµÏ…ÎºÏ‰ÏƒÎ¹Î±	0	neutral
404err0r1	RT @maxkeiser: Good morning. Chance of a #Brexit is 0%. The idea that Brits step off this gravy train is absurd. Go back to sleep.	23 Jun 2016, 15:29 - CEST	New York, NY	63	negative
TanjoHQ	@johnkass48 @Halsrethink Prediction markets have stay at 80%. It's not close at all #brexit	23 Jun 2016, 15:29 - CEST		0	negative
GMehrasa	RT @AdriaanBeenen: De zwakste schakel in de #democratie is de onwetende burger. Geen #Brexit.	23 Jun 2016, 15:29 - CEST	Nederland	1	negative
AllAleLucy	How Europe will break on Brexit according to @POLITICOEurope https://t.co/Hiry0pTYRS via	23 Jun 2016, 15:29 - CEST	Brussels, Belgium	0	negative
FreedomWriter69	RT @Schuldensuehner: Final Ipsos Mori #Brexit phone poll just published shows Remain at 52%, Leave at 48% vs Poll from Jun16 had Remainâ€¦	23 Jun 2016, 15:29 - CEST		45	neutral
heysarahgray	"Brexit is propelled by the same vague antiimmigrant, nationalist sentiment that motivates ... Trump voters." https://t.co/wk5sfUBHk0	23 Jun 2016, 15:29 - CEST	Austin, TX	0	negative
Vasarahammer	RT @DavidJo52951945: Stuff it up your Juncker https://t.co/Rh7EBBLEch	23 Jun 2016, 15:29 - CEST		92	positive
SWStrongerIn	RT @BBCCornwall: ? Cornwall has benefitted hugely from EU fundswill a postBrexit government maintain same levels of support? #EURefSW	23 Jun 2016, 15:47 - CEST		3	positive
phoenix_kom	Im #phoenix Studio spricht Sonja Fuhrmann mit Holger GeiÃŸler @YouGov_DE & Tanja BÃ¶rzel @FU_Berlin 16h #Brexit https://t.co/jgqqmMnYX4	23 Jun 2016, 15:47 - CEST	Bonn	0	neutral
forexDailyTA	FTSE: Global Stocks Jump as Brexit Odds Tank https://t.co/Wv2Sm7SuCb	23 Jun 2016, 15:47 - CEST		0	neutral

Cristina_Cusco	Goita! El primer que m'han plantufat avui nomÃ©s arribar a la City (previa pregunta, of course)#Brexit https://t.co/rNWzzXij5k	23 Jun 2016, 15:47 - CEST	SarriÃ - Barcelona - Catalunya	0	positive
aspland86	RT @Wotamoron: Us at moron think all mp's are all a waste of time but here is our fav #Brexit https://t.co/rydH1v8YN2	23 Jun 2016, 15:47 - CEST	England	83	negative
ha43zu	RT @nhk_news: ã€ãƒ©ã‚¤ãƒ–ãƒ–ãƒã‚° ã‚¤ã‚®ãƒªã‚¹å›½æ°‘æŠ•ç¥¨ã€‘ â€œé›¢è„±ã®é€£鎖 â€ã¯èµ·ãã‚‹ã®ã‹ã‹å›½ã®åŠ ç›Ÿå›½ã•®ä¸- ã§ã¯ã€ã‚¤ã‚®ãƒªã‚¹ä»¥å¤– ã«ã‚‚å ã®å‹•ããŒå‡ºãŒã£ã¦ã„ã¾ã™ã€‚ https://t.co/IPb62D4Vub #nhk_news https://t.co/KLyKnT5vhi	23 Jun 2016, 15:47 - CEST	æ•±äº¬	138	negative
Trev_Forrester	The question is In or Out #LeaveEU #Brexit #StayIn	23 Jun 2016, 15:47 - CEST	England	0	positive
meifan0shizhong	åŒå±…äººã‚æŠ•ç¥¨è¡Œã£ãŸã‚ˆã†ã§Brexitã•¯ã ©ã†ãªã‚‹ã‹ã‚ã‚‰ã€‚	23 Jun 2016, 15:47 - CEST	ä¸-å¤®è•–é¦¬ä¸•å¸é™¢/çº¯è‰ºæœ¯â†’ç• å®•è®¾è®¡	0	negative
vmorillo	"Quiz: The â€˜Brexitâ€™ Vote Is Here. How Much Do You Know?" by STEVEN ERLANGER and HANNAH OLIVENNES via NYT https://t.co/7UCIEqGJzQ	23 Jun 2016, 15:47 - CEST	En algun lugar dla Mancha creo	0	positive
asif	Oh shit. #Brexit #BrexitOrNot #VoteRemain https://t.co/Zg3z6FmR59	23 Jun 2016, 15:47 - CEST	LON/DXB/DAR/NBO	0	negative
AU_bebe	#UK #Brexit VILE Billionaire Open Borders Funder Soros Tells Britain To Stay In EUâ€" Or Else For SOROS #VoteLeave https://t.co/GNWPqHLcHT	23 Jun 2016, 15:47 - CEST	Proud Auburn Tiger. War Eagle!	0	positive
dbenie	RT @MarketWatch: Stocks in rally mode as Brexit vote gets under way https://t.co/UyUgxRNBgu	23 Jun 2016, 15:47 - CEST	NY	11	positive
BrendaPachecoP	RT @eleconomista: Con o sin #Brexit, la UniÃ³n Europea no serÃ¡ la misma... Te decimos por quÃ©: https://t.co/YAaaBaSdmU https://t.co/7pCfC4U3â€¦	23 Jun 2016, 15:47 - CEST	Mexico city	4	negative
AnnaSophia_TOPS	RT @Italians4Trump: God Seems to Be Voting for Brexit Breitbart GOD WE NEED YOU AT THIS MOMENT! #VoteLeave #Leave #Brexit #EURef https:/â€¦	23 Jun 2016, 15:47 - CEST	Toronto	11	positive
Choodleumma	@JohnClarke1960 @YourMrBumbles Born in London in '32 I soon learnt who could be trusted & who could not. Brexit leaders r not to be trusted.	23 Jun 2016, 15:47 - CEST	Cornwall	0	positive

m0nstermashh	RT @MarshallElla: brexit voters are the type of people who go on holiday to Spain and request a full English breakfast everyday.	23 Jun 2016, 15:47 - CEST	Munchkin land	14	positive
ekanderson	RT @FPA_ORG: The #Brexit vote is today. Here are the arguments for and against remaining in the European Union in one chart. https://t.co/zâ€¦	23 Jun 2016, 15:47 - CEST	Atlanta, GA	1	negative
happyburkean	RT @iowahawkblog: "I want you to fire me." @DanHannanMEP gives a superb #Brexit Leave pitch at Oxford https://t.co/HtEUuB4dC0	23 Jun 2016, 15:47 - CEST	Toronto, Ontario	5	positive
iMillasTalk	RT @ronaldlaessig: In #GroÃŸbritannien hat die #BrexitAbstimmung begonnen. 46,5 Mio BÃ¼rger haben sich registrieren lassen und kÃ¶nnen bis 22â€¦	23 Jun 2016, 15:47 - CEST		12	neutral
scottsiepker	Do you find the term #Brexit annoying. (I vote yes!)	23 Jun 2016, 15:47 - CEST	Des Moines, Iowa	0	negative
NerdElert	if we get the expected Brexit Stay vote today...which we will know about 3am tomorrow EST ... smallcaps will explode tomorrow imo	23 Jun 2016, 16:04 - CEST		0	negative
Shockster67	#iVoted #Brexit #Leave	23 Jun 2016, 16:04 - CEST	Yorkshire	0	positive
He_Has_Failed	#brexit https://t.co/fi1sZqi1PV	23 Jun 2016, 16:04 - CEST		0	negative
hon1nbo	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 16:04 - CEST	127.0.0.1	1776	positive
rclaessen	â€œNo conspiracyâ€•: BREXIT trademark registrant on using IP to defend political discussion World Trademark Review (sâ€¦ https://t.co/ZXBIefJW8I	23 Jun 2016, 16:04 - CEST	Cologne, Germany	0	neutral
HBEisen	Traders eye big opportunities after Brexit vote #HedgeFunds #Brexit #UK #EU @mdc https://t.co/MTqjmVrsxv	23 Jun 2016, 16:04 - CEST	New York, NY	0	neutral
Ccolmar	#Internacionales Inmigrante china a favor del Brexit porque su "empleado espaÃ±ol siempre estÃ¡ dormido" https://t.co/7OphsSDL7j	23 Jun 2016, 16:04 - CEST	En la vÃ-a	0	neutral
EaZyForm	Stephanie Flanders beim Handelsblatt: â€žEin Brexit wÃ¼rde die MÃ¤rkte lÃ¤nger verunsichernâ€¦ https://t.co/wHjrrvrDBn	23 Jun 2016, 16:04 - CEST	Augsburg Germany	0	negative
roxyloveslucy	@ElianaBenador @dawngpsalm63 . Please #Brexit!!! It's their last hope.	23 Jun 2016, 16:04 - CEST	Indiana	0	neutral
CyberActualite	https://t.co/pNoo9coPeh LibÃ©ration.fr: Un Brexit coÃ»terait 1% du PIB aux Russes https://t.co/7rQcSEbyd6	23 Jun 2016, 16:04 - CEST		0	negative
hansbos	RT @DavMicRot: #Brexit down to 18%, lowest likelihood of leaving since @PredictWise tracking started 1/1/16. Also, Pounds just hit yearly hâ€¦	23 Jun 2016, 16:04 - CEST	52.22978641,5.4580345	9	negative

Seren_Dipity37	#Noticias Inmigrante china a favor del Brexit porque su "empleado espaÃ±ol siempre estÃ¡ dormido" https://t.co/oJPuauc9FG	23 Jun 2016, 16:04 - CEST	Caracas. - #DeTodoUnPoco	0	neutral
johnny_mac	thinking about my friends who voted in todayâ€™s #brexit vote	23 Jun 2016, 16:04 - CEST	San Francisco, CA	0	positive
jeremynwalker	RT @JetSetterRyan: 80% of Americans think the U.K. should leave the EU. They're right. #Brexit #ChooseWisely https://t.co/zpHfB0qXFm	23 Jun 2016, 16:04 - CEST		51	positive
bolsamania	RT @LunaJoseM: 10 fondos de inversiÃ³n para ganar dinero con el referÃ©ndum en Reino Unido, haya o no Brexit https://t.co/Mj5htxKJEi vÃa @Bolâ€¦	23 Jun 2016, 16:04 - CEST	Madrid	2	neutral
JF_Luc	RT @G_Dussausaye: Ma rÃ©ponse Ã @VOANews: â€œIt will give the British freedom, and it will show we can renegotiate EU treaties". #Brexit httpâ€¦	23 Jun 2016, 16:04 - CEST	Marseille	2	negative
giod_arco	RT @CafeGeopolitico: #Brexit: per l'#Italia Ã¨ meglio il #RegnoUnito rimanga o esca dall'#UE? Diteci la vostra	23 Jun 2016, 16:04 - CEST		5	positive
lambo_unchained	I'm weirdly excited about the #Brexit vote today?	23 Jun 2016, 16:04 - CEST		0	positive
EganRichardson	Brits in Germany left 'fuming' by Brexit polling card fiasco https://t.co/YbOGDnA7ev via @TheLocalGermany	23 Jun 2016, 16:04 - CEST	Helsinki, Finland	0	negative
Horonzoud	RT @volkskrant: Erdogan overweegt Ã³Ã³k een referendum over de EU te houden #liveblog #brexit https://t.co/WKup37LIvD https://t.co/ySF7wHxmhg	23 Jun 2016, 16:21 - CEST		4	negative
internettubes	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 16:21 - CEST	Cardiff	1911	positive
machine01_jag	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 16:21 - CEST		665	neutral
mwengway	@ReDefineEurope @EUWatchers @ShareThis Bullshit ! #Brexit	23 Jun 2016, 16:21 - CEST		0	NA
gcprimecambio	Devemos ficar atentos para a pequena, mas possÃvel hipÃ³tese de "Brexit" (saÃda do Reuni Unido da UniÃ£o EuropÃ©ia) amanhÃ£. (continua)	23 Jun 2016, 16:21 - CEST	Porto Alegre	0	neutral
creativityvtalu	RT @philstockworld: O Brexit Day! Callooh! Callay! $SCHN $SPY $CLF #Futures https://t.co/NfYWt2NpsJ https://t.co/je0ef2LawL	23 Jun 2016, 16:21 - CEST	Michigan	246	positive
YevetteBerguqi2	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 16:21 - CEST	Silicon Valley	665	neutral
pcoss	Brexit Explained https://t.co/Dg0cHWSjkK	23 Jun 2016, 16:21 - CEST	á¼¨Î»Ï•ÏƒÎ¹Î¿Î½ Ï€ÎµÎ´Î¯Î¿Î½	0	negative

GARCIAJacqueli2	RT @ClementCln: Je suis contre le #Brexit mais je suis pour la rÃ©forme du modÃ¨le europÃ©en ! #BrexitOrNot	23 Jun 2016, 16:21 - CEST		1	negative
racketnews	Even France would LEAVE the â€˜sadâ€™ EU if it had a referendum, top French philosopher says https://t.co/FNMQBMLIis	23 Jun 2016, 16:21 - CEST		0	positive
NotihoyPeru	Encuesta | 55 % de los britÃ¡nicos estÃ¡n en contra del Brexit >>> https://t.co/jActezn8yl https://t.co/Vq5chrORKg	23 Jun 2016, 16:21 - CEST	Lima, PerÃº	0	neutral
notihoyweb	Encuesta | 55 % de los britÃ¡nicos estÃ¡n en contra del Brexit >>> https://t.co/C9chGFUwpI https://t.co/i7pP5YbLIm	23 Jun 2016, 16:21 - CEST	Venezuela	0	neutral
bethancrowden	RT @WilfredFrost: What could follow Brexit? Italeave. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium. Or my personal favourite Dâ€¦	23 Jun 2016, 16:21 - CEST		42	positive
ccifrance	RT @CCIR_NordFrance: #BREXIT Qu'en pensent les #entrepreneurs franÃ§ais ? via @ccifrance https://t.co/N2TOfKfrYK https://t.co/7pauVuCRjb	23 Jun 2016, 16:21 - CEST	France Paris 17Ã¨	1	neutral
ettlinger	EUKritik frisch ab Presse: Die Zeitungen haben den BrexitBoden gelegt https://t.co/SMjAiypWBV	23 Jun 2016, 16:21 - CEST	Ettlingen	0	neutral
MelyndaCardiel	RT @scottdgordon88: I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted httâ€¦	23 Jun 2016, 16:21 - CEST	Silicon Valley	1	positive
928ster	RT @paulwaugh: Clue to how strong the Brexit vote is. In Bermondsey newsagents this am, shopkeeper, his wife + all customers buying paper wâ€¦	23 Jun 2016, 16:21 - CEST		29	positive
Happy_kiddo	23 June last yr,I made a Brexit of my own! Can't believe it's been a yr, full of adventures&challengesâœˆ â˜€âœˆâ˜€ To the next..!	23 Jun 2016, 16:21 - CEST	Sydney, Australia	0	negative
simonhall1974	and these people are being allowed to vote today #helpus #brexit https://t.co/cX5dr3RT8v	23 Jun 2016, 16:21 - CEST		0	positive
_Daniela31	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 16:21 - CEST	Madrid	665	neutral
1newlyred	RT @evertonfc2: It's all about who do you dislike the most #Brexit #Remain #c4debate https://t.co/xV2l4ZnwfB	23 Jun 2016, 16:38 - CEST		34	negative
rosyjour	RT @pascalbauche: Quoi de mieux pour illustrer le choix historique qui s'offre aux Anglais! #Brexit #GoBrexit #FN https://t.co/0TUxRKGCIs	23 Jun 2016, 16:38 - CEST		26	neutral
caldo_carlo	RT @Australiaunwra6: #VoteLeave today to secure #Brexit This is the Future that awaits us should we #Voteremain @StrongerIn https://t.co/â€¦	23 Jun 2016, 16:38 - CEST		47	positive
stephen82754737	@LeeReynoldsDUP Spoke to Carly Simon says she's "leaving on a jet plane doesn't known when she'll be back to EU again" #Brexit	23 Jun 2016, 16:38 - CEST	Belfast Northern Ireland	0	negative
WhoShouldIVote4	RT @USA_FREEDOM_NOW: Godspeed, #Brexit. Stick it to the globalists. We #Trump warriors stand united with you.	23 Jun 2016, 16:38 - CEST	United States	1	positive

alexcapron	Les British, vous prendriez bien un croissant ? #operationcroissant #BrexitOrNot #Brexit https://t.co/ce9VkU3DFG	23 Jun 2016, 16:38 - CEST	Paris	0	neutral
DavidJohnJ1984	Funny how Europe are all over us with support and praise to stay... where was all this interest when we performed in the Eurovision #brexit	23 Jun 2016, 16:38 - CEST	Birmingham, England	0	positive
UseiKY	Brexit: 5 Things To Know About British Vote On Leaving European Union: A major vote will go down in... https://t.co/Q6Y80VJBN0 #MafiaSdv	23 Jun 2016, 16:38 - CEST	Brasil	0	negative
StuySquare	We anticipate the #Brexit vote will be to stay by a narrow margin. #Brussels chastened. #Britain empowered. A good outcome all around.	23 Jun 2016, 16:38 - CEST	New York	0	positive
Ronin_IP	Could the #Brexit bookies be manipulated?https://t.co/L7PoTBHJs1	23 Jun 2016, 16:38 - CEST	CT	0	negative
SusevanKleef	RT @NOS: Ongeacht de uitkomst van het brexitreferendum wil Merkel met regeringsleiders praten over de toekomst van de EU: https://t.co/LGLâ€¦	23 Jun 2016, 16:38 - CEST	London, England	5	negative
johnodonnell21	Is cinema shooter in #germany going to influence #brexit #referendum? His motives unclear.	23 Jun 2016, 16:38 - CEST	Brussels & Frankfurt	0	negative
gretel_andersen	@BritsLovePolls fingers and toes all crossed for brexit. You can do this Britain. You still have what made you great.	23 Jun 2016, 16:38 - CEST		0	positive
Pepecongales	RT @MissRoxyMusic: Si el Brexit jode al dÃ³lar, usted ya sabe lo que sigue.	23 Jun 2016, 16:38 - CEST	Guadalajara de Indias	3	negative
matie197	#Brexit might be the best thing for the UK...but it doesn't look good for the EU	23 Jun 2016, 16:38 - CEST	Johannesburg	0	negative
captsingh	Currently Drifting towards EU......#Brexit Come, my friends, 'T is not too late to seek a newer world. https://t.co/ygcz5JaNzF	23 Jun 2016, 16:38 - CEST	SINGAPORE	1	neutral
ModLangsAber	RT @afpfr: Hollande souhaite que les britanniques restent Le DIRECT #AFP sur le #Brexit > https://t.co/6d8tpFlvnh https://t.co/Du7sX2lFâ€¦	23 Jun 2016, 16:38 - CEST	Aberystwyth, Wales	9	positive
JohnJonny1	RT @llmhurtado: Erdogan quiere un referÃ©ndum sobre el 'Brexit'. Sin ser aÃºn de la UE. Preguntar a turcos si quieren seguir con proceso de iâ€¦	23 Jun 2016, 16:55 - CEST	Un ecuatoriano mÃ¡s en Valencia	3	negative
bungdan	Brexit, you ask? Follow the money. https://t.co/qPx5eTcPEP	23 Jun 2016, 16:55 - CEST	Somewhere near Sacramento	0	neutral
haydenkempr	peak when a 97 year old who could die tomorrow can vote but 16/17 year olds can't #Remain #brexit	23 Jun 2016, 16:55 - CEST		0	negative

mujunaeem	RT @eToro: In or out? Either way, it affects the $GBPUSD What will the UK vote in the #EURe ? #Brexit https://t.co/qOEL1an8TH	23 Jun 2016, 16:55 - CEST	Earth	578	negative
MaryKapadia	RT @SocEconMag: Steve Hedley of @RMTunion makes the trade union case for #Lexit #VoteLeave #Brexit #EUref https://t.co/0LzR0fwIqv https:â€¦	23 Jun 2016, 16:55 - CEST	Leicester, England	34	positive
w_nicht	RT @PaulbernalUK: #Brexit people want to #usepens because MI5 are rubbing out their votes but voting to remove one of the few areas of lawâ€¦	23 Jun 2016, 16:55 - CEST	Europe	7	negative
JamesLewisMurr1	RT @Daily_Express: Holland BACKS Brexit: Dutch people urge Britons to QUIT doomed bloc #EUref https://t.co/VhYJHIycnS https://t.co/GqPuwfM1â€¦	23 Jun 2016, 16:55 - CEST	Hamilton Caledonia	38	negative
I_Invest_Mag	The Impact of a Brexit on the European EMoney Market https://t.co/Ab1fEXEQRh	23 Jun 2016, 16:55 - CEST		0	positive
AI_Global_Media	The Impact of a Brexit on the European EMoney Market https://t.co/skyFG7EJ9o	23 Jun 2016, 16:55 - CEST		0	positive
tropicalzoe	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/g6s9EBtG5J	23 Jun 2016, 16:55 - CEST	rosewood	0	positive
Mumtrepreneur	@eucopresident Today is the day to repeat this message if it is the truth @eucopresident #referendum #Remain #Brexit	23 Jun 2016, 16:55 - CEST		0	negative
soccer_is_alive	RT @BillDudleyNorth: Campaign team in Stourbridge #Brexit winning https://t.co/576OOV0ZiC	23 Jun 2016, 16:55 - CEST		28	positive
gdnnetwork	[#SmallBusiness #Brexit #UK] How The Brexit Vote Could Hurt Small Business Lending In The U.S. @forbes https://t.co/PMIDr0xxTZ	23 Jun 2016, 16:55 - CEST		0	negative
minthecab	RT @StephenBulled: Mr Cameron said I might lose a few quid if I vote leave. Just remember what we asked these guys to give. Brexit httpâ€¦	23 Jun 2016, 16:55 - CEST	Kent	197	positive
ETFFunds	Dow Up Big as Brexit Fears Wane.. https://t.co/L7je5Xwvj3 $DIA #ETF #ETFs #Stocks	23 Jun 2016, 16:55 - CEST	Orlando, FL	0	negative
ClLongmuir	RT @HuwGruffydd: UK Brexit vote: Muslim hatepreacher backs â€˜Remainâ€™ â€“ Says EU courts benefit Islam and are softâ€¦ https://t.co/qu221XCueJ vâ€¦	23 Jun 2016, 16:55 - CEST		11	negative
storahagen	RT @TheSwedishRhino: Att @anderslindberg tillhÃ¶r #Remain Ã¤r en tydlig kontraindikator pÃ¥ hur otroligt viktig #Brexit Ã¤r fÃ¶r vÃ¥r framtid httâ€¦	23 Jun 2016, 16:55 - CEST	Nora, (Ã¤ven Gotland), Sverige	2	negative
axelchri	@carolaurrejola ojo q tÃ©cnicamente hoy es referÃ©ndum de permanencia de UK a la UE. Brexit se refiere al escenario de q gane la opciÃ³n Salir	23 Jun 2016, 16:55 - CEST		0	positive
Izzaroiz	En Reino Unido el brexit y aquÃ Muskiz o Leioa. #referendum	23 Jun 2016, 16:55 - CEST	ezkerraldea	0	neutral

Khansaiff1	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 16:55 - CEST	Mumbai ,India.	5664	positive
basedkaka	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/GMVeCImK7V	23 Jun 2016, 17:12 - CEST		0	positive
Dvmebi	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 17:12 - CEST	Not In Kansas Anymore	5723	positive
deanowilliams7	RT @Geezajay2013: Here we go folks, Next they will be arresting people for voting leave! #Brexit #VoteLeave https://t.co/uB6ZAea102	23 Jun 2016, 17:12 - CEST	southampton	5	positive
edavid57edavid	RT @nytimes: MorningÂ Briefing: Here's what you need to know to start your day https://t.co/fvjfPVQUXS https://t.co/nDR2iTbkAX	23 Jun 2016, 17:12 - CEST		39	positive
commodityways_J	RT @jrhopkin: #Brexit: a handy way of allowing the poor to get angry about inequality without challenging the people responsible? https://tâ€¦	23 Jun 2016, 17:12 - CEST	India	1	negative
3pin3	RT @toadmeister: #VoteLeave #Brexit #IndependenceDay https://t.co/i8JlTC8hNE	23 Jun 2016, 17:12 - CEST	Brighton	178	positive
Mikelelosegiazp	RT @hugomabarca: Los que dicen que todos los espaÃ±oles tenemos que votar sobre CataluÃ±a porque nos influye Â¿exigen que votemos el Brexit?	23 Jun 2016, 17:12 - CEST	Gasteiz (Euskal Herria)	52	positive
bosey44	RT @ElizabethHurley: Vote tomorrowwhatever your persuasion. I'm for #Brexit & promise to neither gloat nor whinge. But VOTE! https:â€¦	23 Jun 2016, 17:12 - CEST		3515	negative
GarethFearn	@samhind10 Presume you will be backing brexit? Gonna be a lot of money in cartography if we leave. Will need brand new maps!	23 Jun 2016, 17:12 - CEST	Manchester, England	0	positive
DanKing383	You ruled most of the world by yourself, why do you need the EU now? #Brexit	23 Jun 2016, 17:12 - CEST		0	negative
amustie	RT @MONEY: 5 reasons Americans should care about the #EUref https://t.co/qSI5g63D4C	23 Jun 2016, 17:12 - CEST	Lagos, Nigeria	6	neutral
taylormarsh	RT @CNBC: A #Brexit could be costly, warns @David_Cameron. Everything you need to know about #EUref: https://t.co/A11qbSJ6A7 https://t.co/lâ€¦	23 Jun 2016, 17:12 - CEST	Washington, D.C. Beltway	9	negative
Alisha90uk	#iVoted for #Brexit today! Britain should not by ruled over by foreign globalist elites! #referendum	23 Jun 2016, 17:12 - CEST	Toronto Canada, Leeds England	0	negative
nymeria60	RT @Anny690: Brexit : en plein scrutin, la Barclays brandit la menace dâ€™une tourmente mondiale !@novopress https://t.co/9ovaqAOsPn	23 Jun 2016, 17:12 - CEST		4	negative
sasa16sasa	RT @WilfredFrost: What could follow Brexit? Italeave. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium. Or my personal favourite Dâ€¦	23 Jun 2016, 17:12 - CEST		312	positive
POLSEdmonton	Why votersâ€™ â€˜flinch factorâ€™ will doom Brexit: Britain's Brexit referendum looks too closeâ€¦ https://t.co/yLn9NVf63d https://t.co/GfWXgVDQ5R	23 Jun 2016, 17:12 - CEST	Edmonton, Canada	0	neutral

NBaltasa	RT @VilaWeb: .@raulromeva: â€˜El #Brexit desmenteix que una Catalunya independent sortiria de la UEâ€™ https://t.co/EwyA3F3IOb	23 Jun 2016, 17:12 - CEST		26	neutral
BRESU_	RT @Daily_Express: 'Turkish migrants to CRIPPLE the NHS' #Brexit minister's stark WARNING about EU ascension https://t.co/MnHiwJPDra https:â€¦	23 Jun 2016, 17:12 - CEST	UNITED KINGDOM | FOLLOW BACK	50	neutral
USA1Calling	RT @808alohadeals: So he was speeding up training on who?!? #Brexit @BarbMuenchen @Patriotic_Me @dawnmariefhl @surfermom77 @steph93065 httâ€¦	23 Jun 2016, 17:12 - CEST	USA	84	negative
24bourse	#Forex: Lâ€™#euro majoritairement en hausse, le vote sur le #Brexit domine https://t.co/brCWMg2cOs https://t.co/pb4moimUqK	23 Jun 2016, 17:29 - CEST	France	0	positive
FireCask	Boozing for #brexit or bladdered for #bremain? Whichever way, play the Ultimate EU Referendum Drinking Game. #EURef https://t.co/bkcP9VJ7IX	23 Jun 2016, 17:29 - CEST	Manchester, UK	0	negative
roujul	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 17:29 - CEST		2729	positive
kraftw33rk	#Brexit Brexit Brexit Ich kann's nicht mehr hÃ¶ren! Lasst sie doch ziehen Mann. Die Welt dreht sich weiter. Laberlaber. Macht andere Arbeit	23 Jun 2016, 17:29 - CEST	Niedersachsen, Deutschland	0	negative
F1fankaren	I voted out #VoteLeave #Brexit #EUref #TakeBackControl https://t.co/iM98FvrznN	23 Jun 2016, 17:29 - CEST	Newcastle Upon Tyne, England	0	positive
almutmoeller	RT @JJ52: #Brexit and me tonight on @dw_global until dawn, Berlin time @ecfr https://t.co/BCFxNA4bWt	23 Jun 2016, 17:29 - CEST	Berlin	2	neutral
cenmag	Here's how a British exit from EU could affect the UK chemical industry & scientists https://t.co/58IVV5Ogu1 #Brexit https://t.co/AQYRdOkInF	23 Jun 2016, 17:29 - CEST	Washington DC	0	negative
Ohitsanissa	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/cOC7oaFtdo	23 Jun 2016, 17:29 - CEST	S.LDN	0	positive
Kisushima	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 17:29 - CEST	Norwich	3235	neutral
NononJakuzure18	RT @FolkyYuno: idea: #brexit	23 Jun 2016, 17:29 - CEST	Moscow, Russia	2	neutral
contedelfina	How 'Brexit' would inflame populism abroad â€” and here in the US https://t.co/jDW2Dngtnq	23 Jun 2016, 17:29 - CEST	Chicago, IL	0	negative

Danapersona	Svenska partiledarnas stora oro fÃ¶r en brexit https://t.co/ACKcSL5GI7 Tummarna fÃ¶r England, lÃ¤mna dÃ¥rskapen.	23 Jun 2016, 17:29 - CEST	GÃ¶teborg, Sverige	0	negative
mrtriple5	RT @DonaldClarke63: It's #pencilgate. #Brexit nutcases suggesting pencils, rather than pens, have been provided to facilitate fraud. https:â€¦	23 Jun 2016, 17:29 - CEST		3	neutral
Insure_My_Villa	#UKexpats in Spain watching Brexit vote anxiously https://t.co/Qdlp2XdMNW #Spain https://t.co/F5ild6amUr	23 Jun 2016, 17:29 - CEST	UK	0	neutral
KeevoBrown82	European family in park. Mum says to kids "come on, its time to go home" Come tomorrow morning it may be truer than you suggested #brexit	23 Jun 2016, 17:29 - CEST	Whitley. Coventry. U.K.	0	neutral
pialikespizza	RT @AlisonNotaBird: the real stake of #brexit is if @pialikespizza keeps or loses her status of having the two most powerful passports in tâ€¦	23 Jun 2016, 17:29 - CEST	THE MOMENT	1	neutral
fsclaire_	Whit does "brexit" mean?? makes me think of breakfast	23 Jun 2016, 17:29 - CEST	scotland.	0	positive
eleanorpd	RT @sophie_sparkes: Last night, Remain tweets finally outstripped Leave tweets. Wonder if this is indicative of how #brexit will go? https:â€¦	23 Jun 2016, 17:29 - CEST	Mercer Island, WA	1	negative
TheGregJones	People of Britain: how about celebrating with a continental breakfast for #Bremain and a consolatory full English if it's #Brexit?? #EUref	23 Jun 2016, 17:29 - CEST	London	0	negative
SPIEGEL_Politik	RT @Augstein: Um die Rechten zu stoppen muss Europa stÃ¤rker UND sozialer werden https://t.co/4KnK3Nur5J	23 Jun 2016, 17:29 - CEST	Hamburg und Berlin	2	neutral
condorbox	RT @gzibordi: la cosa patetica Ã¨ che sia il Blog di Grillo&DeMaio che la Meloni non appoggiano la Brexit perchÃ¨ hanno la sensazione che perâ€¦	23 Jun 2016, 17:46 - CEST	43.52247,13.23519	7	negative
Mickierod	@realdealdanny seriously make sure you use a pen. I am NOT joking. Brexit	23 Jun 2016, 17:46 - CEST	Here, there and back again	0	negative
Hansalyse	Sidder pÃ¥ en strand i Israel. Hvor kan jeg finde en brexit exitpoll?	23 Jun 2016, 17:46 - CEST	â˜Žï¸• 28543246	0	negative
NewstalkFM	#Brexit: The highs and lows of the referendum campaign so far: https://t.co/83IFANn5v2 https://t.co/zmacFklGWc	23 Jun 2016, 17:46 - CEST	Ireland	0	negative
KebiegoNixon	RT @citizentvkenya: BREXIT: What the consequential vote means https://t.co/xHxzI8W1SF https://t.co/T2VGJaCTcO	23 Jun 2016, 17:46 - CEST	kitale	2	neutral
wlstcom	Wall Street Climbs as Brexit Vote Eyed Fox Business #Brexit https://t.co/S6DviHMrfm https://t.co/L5lO3Wyurk https://t.co/UBVKdi2oWI	23 Jun 2016, 17:46 - CEST	digital	0	neutral
facilitatore	The latest The facilitatore Daily! https://t.co/ZHox0g2dZ4 Thanks to @gmboccanera @perugini #brexit #m5s	23 Jun 2016, 17:46 - CEST	Ti risolvo problemi	0	positive

SOHOCG	RT @Eventmagazine: Final #Brexit countdown #eventprofs: Have you voted? #ivoted #EUref #experiential	23 Jun 2016, 17:46 - CEST	United Kingdom | Great Britain	11	neutral
NEStrongerIn	North East faith figures sign letter urging against Brexit https://t.co/jLJvImdcQc	23 Jun 2016, 17:46 - CEST	North East, England	0	neutral
Dylan__nick	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 17:46 - CEST	Gallifrey	2922	positive
wwjzd1	RT @AmbJohnBolton: Retweet to show your support for #Brexiters across the pond as they vote in today's #UKreferendum. #VoteLeave #Brexit	23 Jun 2016, 17:46 - CEST	New York, NY	284	positive
MargueritePerle	RT @lemondefr: La presse britannique vote Â« #Brexit Â» https://t.co/JopGIamLII	23 Jun 2016, 17:46 - CEST	France, Evry	14	neutral
WeepingSophia	@sophiabotha74 Racists, truly believe it's okay to RACIALLY PROFILE, majority WHITE NATIONS. INTERNATIONAL HATE CRIME. #Brexit	23 Jun 2016, 17:46 - CEST	Ohio	0	negative
maletaIt	Regno Unito: code agli sportelli per ritirare denaro. Eâ€™ â€œBrexit fobiaâ€• https://t.co/fiCZyiE3Z1	23 Jun 2016, 17:46 - CEST		0	negative
Shoobridge	Why vote out? https://t.co/IizSZMvZoJ #Brexit #WeWantOut	23 Jun 2016, 17:46 - CEST	United States	0	negative
mendes_soldier8	RT @GlamourMagUK: #IVoted Team GLAMOUR votes Remain. Here's why: https://t.co/i5iv1GJkQJ https://t.co/QwuIF9HPMZ	23 Jun 2016, 17:46 - CEST	oxford, uk	136	negative
luke_sw2	RT @JetSetterRyan: 80% of Americans think the U.K. should leave the EU. They're right. #Brexit #ChooseWisely https://t.co/zpHfB0qXFm	23 Jun 2016, 17:46 - CEST	SC, USA	70	positive
BestFifaWagers1	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/abwP6lr4Wy	23 Jun 2016, 17:46 - CEST		0	positive
UKIPNFKN	Commons confidential: Boris's blond #Brexit ambition #StrongerIN #VoteIN #EUref #INorOUT #LabourIN #INTogether https://t.co/9sW5u4OmSP	23 Jun 2016, 17:46 - CEST	United Kingdom	0	negative
julochinho	RT @aguzmanbas: Faltan 6 horas para el cierre de los colegios en el Reino Unido. Las Ãºltimas encuestas dan una ligera ventaja al 'Remain'.â€¦	23 Jun 2016, 17:46 - CEST	Torre de HÃ©rcules	5	negative
englishjohn007	RT @DavidJo52951945: Police question UKIP supporter who gave voters a pen outside the polling stationsounds very suspicious https://t.co/2â€¦	23 Jun 2016, 18:03 - CEST	England	94	negative
Perugiacafe	RT @nhk_news: ã€ã‚¤ã‚®ãƒªã‚¹å›½æ°'æŠ•ç¥¨ è§£èª¬ã€' ã‚¤ã‚®ãƒªã‚¹è-°ä¼šã®å‰ã§ã¯å„å›½ã®ãƒ¡ãƒ‡ã‚£ã‚¢ãŒç››ã‚“ã•«ä¸ç¶™ã‚'è¡Œãªã£ã¦ã„ã¦ã€ä¸–ç•Œä¸ã®äººãŸã¡ãŒã‚¤ã‚®ãƒªã‚¹å›½æ°'ã®åˆ¤æ–ã'ã€å›ºå”¾ã'ã®ã‚“ã§è¦‹å®ˆã£ã¦ã„ã¾ã™ã€, https://t.co/jlmeXHVpQs #nhk_news	23 Jun 2016, 18:03 - CEST	æ•±äº¬éƒ½å¤§ç”°åŒºä¸å¤®3-5-2	32	negative

PriorAwareness	Index shifts, Brexit vote could make Friday freaky on Wall Street https://t.co/jbs5M9zGSr	23 Jun 2016, 18:03 - CEST	Omniprevelant	0	negative
the_ocd_editor	RT @Britannica: Curious about today's #Brexit referendum in the U.K.? We've got some background. #spotlight https://t.co/PxVRpMvLBI https:/â€¦	23 Jun 2016, 18:03 - CEST		1	positive
a_molinam	RT @ReactionaryTree: I'd honestly be surprised if the UK we allowed to #Brexit even if they vote to leave. I doubt the EU bureaucrats willâ€¦	23 Jun 2016, 18:03 - CEST	Merida, Mexico	2	positive
HFerdjani	RT @ImaniAmrani: This morning's discussion with @HFerdjani for @africanews on #Brexit (I love that they dubbed me w/a man's voice) https://â€¦	23 Jun 2016, 18:03 - CEST	All Over The Place	1	positive
massivegenius77	@massivegenius77 Havd u voted? #ivote #ivoted #BrexitOrNot #Brexit #StrongerIn	23 Jun 2016, 18:03 - CEST	North Weald, East	0	negative
drecksackdings	passend zum #brexit ein bild meines englischen garten. https://t.co/n1oly2v0Gd	23 Jun 2016, 18:03 - CEST		0	positive
sturdy_citizen	RT @EconomistLake: What a day: UK Brexit vote Supreme Court blocks Obama immigration plan House Democrats stage sitin Trump visits golf coâ€¦	23 Jun 2016, 18:03 - CEST		6	positive
grispastor	Ue#Brexit lo unico k que quema es la temperatura inusual en Bx!! https://t.co/heIPKX6SuR	23 Jun 2016, 18:03 - CEST	bruxelles	0	neutral
FouadBoussetta	RT @AishaAkbar17: Anjem Choudary, #UK Islamist & #ISIS Recruiter, endorses Remain. #StrongerIn what Universe? I stand with #BREXIT!!! httpsâ€¦	23 Jun 2016, 18:03 - CEST	Montreal,Quebec,Canada,Sol III	94	negative
ParisFranceNews	Brexit, les FranÃ§ais de Londres miperplexes, misereins https://t.co/6AXQLLQzPL #GoogleAlerts	23 Jun 2016, 18:03 - CEST	Paris	0	neutral
Mussi_87	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/fppaALA5wk	23 Jun 2016, 18:03 - CEST	Frankfurt am Main	0	positive
MaanvirMinhas	EUR'OPEANS to Britons : What matters in the end is YOUR'OPINIONS. #brexit #bremain #BremainVsBrexit #referendum #BrexitOrNot #EUref	23 Jun 2016, 18:03 - CEST		0	negative
SebmonkSeb	RT @B0andra: @ukleave_eu BREXIT! Keep our Sovereignty. https://t.co/IcEFilnT3U	23 Jun 2016, 18:03 - CEST	Uk	4	positive
UKIPNFKN	RT @InFactsOrg: Another example of misleading Brexit story gets corrected just in time for #EUref voters to not be misled! https://t.co/dâ€¦	23 Jun 2016, 18:03 - CEST	United Kingdom	6	negative

TarazonaCigars	RT @cosimocaridi: If today #Brexit, tomorrow Grexit Departugal Italeave Czechout Oustria Finish Slovakout Latervia Byegium via @SheikhItHâ€¦	23 Jun 2016, 18:03 - CEST	Miami, FL	101	positive
_MatthewBritton	RT @_MatthewBritton: This is what you look like when you #VoteLeave #EUref #EUreferendum #Brexit #VoteRemain https://t.co/HXAr856hg7	23 Jun 2016, 18:03 - CEST	Wales	4	positive
Davinchi__A	RT @pictoline: La Batalla del Brexit ha comenzado: Reino Unido estÃ¡ votando si se va o se queda en la UniÃ³n Europea https://t.co/AudmrcOx20	23 Jun 2016, 18:03 - CEST	Bogota, Colombia	456	neutral
GodSquadandMe	@keitheadams has been trolled all day since this tweet. Don't know how 'In' take moral high ground #Brexit https://t.co/ZKr366ZD7R	23 Jun 2016, 18:03 - CEST		0	negative
BarfootPet	#EUreferendum #Brexit https://t.co/25JVVOvkkE	23 Jun 2016, 18:20 - CEST	Belfast, Northern Ireland	0	NA
gonzalomorgadoj	La academia britÃ¡nica alerta de los enormes riesgos cientÃficos del Brexit MIT Technology Review https://t.co/INA1KcXB8f @red_ciencia	23 Jun 2016, 18:20 - CEST		0	negative
sherloksam	RT @TDAJJKinahan: LIVE on #Periscope: Bank stress test and Brexit. https://t.co/sDFF7ipxQW	23 Jun 2016, 18:20 - CEST		8	negative
WanesYann	Belle promo antiBrexit https://t.co/sNdBYeu5va	23 Jun 2016, 18:20 - CEST	Bubry	0	NA
kezie_madu	RT @Amaka_Ekwo: #EURef Europe is not a nation. Vote leave. #Freedom #BRexit #Britain #BiafraExit #Biafra #FreeBiafra #SupportBiafra	23 Jun 2016, 18:20 - CEST		15	positive
DeepTmp	RT @KaspHaus: Ð“Ð»Ð°Ð²Ð½Ñ‹Ð¹ Ñ⍰Ñ‚Ð¾Ñ€Ð¾Ð½Ð½Ð¸Ðº #Brexit , ÑˆÐµÑ„ Ð¿Ð°Ñ€Ñ‚Ð¸Ð¸ UKIP, Ð² ÐºÐ¾Ñ‚Ð¾Ñ€Ð¾Ð¹ Ñ⍰Ð¾Ñ⍰Ñ‚Ð¾Ð¸Ñ‚ Ð“Ñ€Ð¸ÑˆÐµÐ½ÑŒÐºÐ° Ð¤Ð¸Ð»Ð»Ð¸Ð¿Ñ• Ð¿Ñ€Ð¾ Ð£ÐºÑ€Ð°Ð¸Ð½Ñƒ Ð²	23 Jun 2016, 18:20 - CEST		3	neutral

	Ð¸Ð½Ñ‚ÐµÑ€Ð²ÑŒÑŽ Ð›ÐµÐ½Ñ‚Ðµ.Ñ€Ñƒ: https://tâ€¦				
yactusfrance	Brexit : quelles consÃ©quences pour les entreprises franÃ§aises ? https://t.co/eRlZgEuxtz	23 Jun 2016, 18:20 - CEST	Paris, Ile-de-France	0	neutral
sdalsulami10122	RT @HayleyMcQueen: Meanwhile the Caterpillars are busy today https://t.co/3Lg8MQtumZ #brexit	23 Jun 2016, 18:20 - CEST		4	neutral
joviaryadi	RT @TIME: This is why the Brexit vote could be just the beginning for an angry Europe https://t.co/vnuzL866AH [Corrected tweet]	23 Jun 2016, 18:20 - CEST	Jakarta - Bali, Indonesia	4	negative
tucksnews	Brexit Poll Shows 80% Of Americans Think Britain Should Leave EU Forbes https://t.co/16GAw5bNmt	23 Jun 2016, 18:20 - CEST	Austin, Texas	0	positive
milanbpatel90	RT @ndtv: #Brexit No doubt if UK Parliament had decided it would have voted #Remain: Shiv Shankar Mukherjee, ExEnvoy to Britain	23 Jun 2016, 18:20 - CEST	At hELL	1	negative
leoncina__	RT @Daniel_Portman: https://t.co/hE3KJF1NFn Being put on the same list as James Bond and Hermione Granger made me feel quite cool. #Remainâ€¦	23 Jun 2016, 18:20 - CEST	Saint Vladimir Academy	17	negative
sn0wba111	RT @DavidJo52951945: Analysis of betting oddsthere have been a large number of Brexit bets,remain no of bets small but larger bets https:/â€¦	23 Jun 2016, 18:20 - CEST	Ireland	26	negative
xchurlx	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/oSOD9lQeYa	23 Jun 2016, 18:20 - CEST	Newcastle, Port-Harcourt	0	positive
Idl3	The latest The Idl3 Daily! https://t.co/DADHXqVsqb Thanks to @Th3Zer0 @saracristaldi @jgbarah #brexit #euref	23 Jun 2016, 18:20 - CEST	Sardigna	0	positive
yactusfrance	Brexit : un scrutin indÃ©cis https://t.co/HT7yCBwBZt	23 Jun 2016, 18:20 - CEST	Paris, Ile-de-France	0	negative
efagie	RT @DrBrianMay: BREXIT ? My view ? Simple. Stay in Europe but then get rid of Cameron and his gang of proprivilege cronies. Let's get câ€¦	23 Jun 2016, 18:20 - CEST		632	negative
GiordieRobba	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/uSGeUIl1lF	23 Jun 2016, 18:20 - CEST	lá”•á’ªE Oá–´ á—°á—©á’Ž	0	positive
debralinna	RT @gavthebrexit: BREAKING: Dozens TURNED AWAY from voting in EU referendum because of registration RIGGING??>>https://t.co/GRMPVIthKS httpâ€¦	23 Jun 2016, 18:20 - CEST	Wv	60	negative
ndtv	#Brexit | Large amount of British press not even owned by residents, they're peddling lies: Patrick French, Author and historian	23 Jun 2016, 18:20 - CEST	India	0	negative
balticbarbarian	RT @sidneyabbot: There should be more options with this #Brexit lark than "In" or "Out". Maybe a 3rd choice of "Just the tip". Works with tâ€¦	23 Jun 2016, 18:38 - CEST		24	positive

__katieoldcorn	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/IRNT2bX1nj	23 Jun 2016, 18:38 - CEST	Cumbria	0	positive
evie121462	RT @INTJutsu: The refugee fiasco emphasizes why the UK mustn't rely on foreign unelected officials to determine their fate #BREXIT https://â€¦	23 Jun 2016, 18:38 - CEST	Illinois, USA	9	negative
VieEconomique	Wall Street : portÃ© par l'hypothÃ¨se d'un non au Brexit. https://t.co/leKci23927 #wallstreet	23 Jun 2016, 18:38 - CEST		0	negative
ctrlaltdeluke	RT @WilfredFrost: What could follow Brexit? Italeave. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium. Or my personal favourite Dâ€¦	23 Jun 2016, 18:38 - CEST	@aitarien	585	positive
nineismi9	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 18:38 - CEST		4370	neutral
RCJustSaying	#BrexitOrNot #Brexit is a good move, now can we talk about moving Pakistan may be to Mars ? #okSorryBye	23 Jun 2016, 18:38 - CEST	Phoenix Arizona	0	negative
grossi_9	RT @ajcdeane: Huge new #Brexit asset emerges. #VoteLeave #EUref #iVoted https://t.co/Xdrlyqapcr	23 Jun 2016, 18:38 - CEST	Liverpool	215	positive
MESUTTASKIRAN	@ProfElvanAktas tskkurler ederim.hocam bu arada brexit mi neyse bizi yaktÄ± ya...	23 Jun 2016, 18:38 - CEST		0	positive
ChobDux	Spinach, Emmental, and mushroom galettes at Castle Dux tonight. None of your shitty, bland, brexit butties for me.	23 Jun 2016, 18:38 - CEST		0	negative
KDG_Accountants	European stocks are flying https://t.co/ARFavKIotI	23 Jun 2016, 18:38 - CEST	Iver, Buckinghamshire	0	neutral
Gr8LakesCzarina	Reclaim your soverignity; #VoteLeave! Yay #Brexit.	23 Jun 2016, 18:38 - CEST	Hurtling into the abyss	0	positive
Adamonanners	RT @William_Hahne: Do the only sane thing and vote LEAVE today, British friends! Against the EU â€“ For free European nations! #Brexit httpsâ€¦	23 Jun 2016, 18:38 - CEST		5	positive
_lauracasey	@Nigel_Farage Social Data indicates that remain leads 58/42 https://t.co/inydRLNo6G #Brexit https://t.co/K5dG0po0aO	23 Jun 2016, 18:38 - CEST	Dallas	0	negative
Marta_Bellon	RT @LukaszGrass: Kolejki do kantorÃ³w wymiany walut w Londynie. @DamianSzymaski6 https://t.co/Uk5sGJsPwr https://t.co/tlfNXurCOF	23 Jun 2016, 18:38 - CEST	Warsaw, Poland	3	neutral
JackWiles16	RT @AldiCustCare: We've got limited stock of soon to be very rare, Boris Jonson signed Eurovision compilation CDs #Brexit #SpecialBuys httpâ€¦	23 Jun 2016, 18:37 - CEST	Bournemouth, England	5	positive

wowalexisreally	RT @BraddJaffy: To recap: â€”SCOTUS immigration â€”SCOTUS affirm. action â€”Freddie Gray verdict â€”Germany gunman â€”Brexit â€”House sitin â€”VW settlâ€¦	23 Jun 2016, 18:37 - CEST	blacklivesmatter	132	negative
TRADER_INSIDE	RT @MarketWatch: The dirty secret about the Brexit vote: Itâ€™s all a sham, says @BrettArends https://t.co/5MChC3HONH	23 Jun 2016, 18:37 - CEST	Wash D.C.	9	negative
DARKBLUETRADER	RT @MarketWatch: The dirty secret about the Brexit vote: Itâ€™s all a sham, says @BrettArends https://t.co/5MChC3HONH	23 Jun 2016, 18:37 - CEST		9	negative
emilykimber	RT @jamesdboys: A profound, sober article on divorce and #Brexit by the always engaging @nfergus for @spectator https://t.co/edWuLXYTMJ	23 Jun 2016, 18:37 - CEST	London	1	negative
CortioMalties	@Tono_Otero Â¿Por quÃ© los partidarios del #BREXIT estÃ¡n en negativo en la grÃ¡fica?	23 Jun 2016, 18:55 - CEST		0	NA
shop_marketer	RT mashable: RT MashableUK: #DogsAtPollingStations are helping their owners vote in the 'Brexit' referendum â€¦ https://t.co/sxsU6QWUVf	23 Jun 2016, 18:55 - CEST		0	NA
ColumbiaGR	RT @ForeignPolicy: Hereâ€™s how the Brexit could derail production of @GameofThrones, @davidcfrancis reports https://t.co/LQQICYo6l2	23 Jun 2016, 18:55 - CEST	New York, NY	4	NA
cateronchieri	RT @FrancoFrattini: #Brexit: attenti allâ€™effetto â€œtanto rumore per nullaâ€•.â€œRemainâ€• non cancellerÃ problemi Europa: serve cambio di passo htâ€¦	23 Jun 2016, 18:55 - CEST		4	negative
GiuseppinaLind3	RT @ForexLive: The Brexit vote is playing out in the market exactly like the Scottish referendum https://t.co/Tp0zeey6FJ https://t.co/Q2iQ5â€¦	23 Jun 2016, 18:55 - CEST	Silicon Valley	2	NA
Ladybug1357	https://t.co/pDuznAFUKz	23 Jun 2016, 18:55 - CEST	johannesburg. south africa	0	NA
AltNieuws	RT @PowellPolitics: The French said NO The Dutch said NO The Irish said NO The Dutch said NO Again All ignored or told to vote again. Comeâ€¦	23 Jun 2016, 18:55 - CEST		409	NA
rebeccanomics	Wondering what effect the rain will have on voter turnout. Will Brexit voters display more old fashioned British stoicism? #EUreferendum	23 Jun 2016, 18:55 - CEST	Waterloo London	1	NA
dngrfld	RT @Stop_The_EU: VOTE LEAVE For Freedom ~ Sovereignty ~ Democracy	23 Jun 2016, 18:55 - CEST	Astana	21	positive

	#usepens #iVoted #VoteLeave #Brexit #EUref #referendum httpsâ€¦				
txellt	RT @assemblea: No referendumNo democracy #Brexit https://t.co/6Rsn9rrsof	23 Jun 2016, 18:55 - CEST	Terrassa, Catalunya	163	NA
ficuselectric	Si vais a poner de moda lo de poneros calcetines largos con bermudas en verano, deberÃais celebrar un brexit personal y salir de la UE.	23 Jun 2016, 18:55 - CEST	Cut Off, LA	0	NA
aviation_dp	What Would Brexit Mean for Commercial Aviation? #uk https://t.co/UtLN4jWeoT	23 Jun 2016, 18:55 - CEST		0	NA
tomscott01	RT @Vendavo: #Oil Prices Fall on Supply Overhang, â€˜Brexitâ€™ Uncertainty: https://t.co/YljQOiCWTa via @WSJ	23 Jun 2016, 18:55 - CEST	Devon, PA	1	NA
anaisunbroken	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/2z2tWVVIla	23 Jun 2016, 18:55 - CEST	IdhÃºn	0	NA
Dogma666Steve	Of course the tax dodgers want us to stay in #Brexit	23 Jun 2016, 18:55 - CEST	UK	0	NA
taxhaven77	RT @AdamSmith2sei: æ—¥æœ¬æ ª6æœˆç¬¬3é€±æŠ•è³‡éƒ¨é–€å ˆ¥å£²è²·çŠ¶æ³• ãƒ–ãƒã,°ã,³ãƒ¡ãƒ³ãƒˆã,'æ›´æ–°ã•—ã•¾ã•—ãŸã€, â†'https://t.co/5rG7JOmIIF å£²è²·ãの®åŒæ–¹ã•ŒBrexitä¸å®‰ã¨æ—¥éŠ€é‡'èžæ"¿ç–æ±ºå®šä¼šåˆã«å¯¾ã™ã‚‹å¤±æœ›ã‚'æ„Ÿã˜ãŸã€, æµ·å¤–ã•¯æ ªä¾¡ã«ã‹ã‹ã,ã,Šãªãå£²ã,Šã,'å‡ºã—ãŸã€,å®Ÿè³ªçš„ãªè²·ã„â€¦	23 Jun 2016, 18:55 - CEST		4	NA
louise_stevens_	RT @uk_rants: #iVoted to #Leave cos I want UK to remove 3rd World tariffs & let those who work bloody hard live some semblance of life. #Brâ€¦	23 Jun 2016, 18:55 - CEST	UK	42	positive
roservaqupons	RT @Agentsecret086: Fractura social en inglaterra a causa del brexit. Las familas no se hablan entre ellas! Peleas en las calles. Queman baâ€¦	23 Jun 2016, 18:55 - CEST		13	NA
AmourAStar	#Brexit #VoteLeave #YourVoteCounts #eureferendum https://t.co/pWqQzD8zj4	23 Jun 2016, 18:55 - CEST	London, England	0	positive
noname210174	RT @ForexLive: The Brexit vote is playing out in the market exactly like the Scottish referendum https://t.co/Tp0zeey6FJ https://t.co/Q2iQ5â€¦	23 Jun 2016, 18:55 - CEST		2	NA
pseudomonas	RT @MooseAllain: If it ain't broke, don't brexit.	23 Jun 2016, 19:12 - CEST	London, UK	4	NA
CPY_Oficial	Los mercadÃ³logos tambiÃ©n opinan sobre el Brexit https://t.co/RBo1sEx76t	23 Jun 2016, 19:12 - CEST	YucatÃ¡n	0	neutral
KeithARobertson	supporting #Brexit wants me to help them spread the word then let me know I shall do so!	23 Jun 2016, 19:12 - CEST	Glasgow, Scotland	0	NA

Alexios1201	#BREXIT #EUREF madness https://t.co/V0Kp3p5CD6	23 Jun 2016, 19:12 - CEST	#OOTT	0	NA
247HaydenMedia	RT @Nigel_Farage: It's time to get our borders back, our democracy back and our country back. #Brexit https://t.co/eArDsfxlO3	23 Jun 2016, 19:12 - CEST	Yorkshire, England	1806	NA
afiqahmnr	RT @ajplus: London's mayor Sadiq Khan crushed a recent #Brexit debate â€” while fasting. Mic drop, please. https://t.co/cN5jMmfvmQ	23 Jun 2016, 19:12 - CEST	Indiana, USA	614	NA
JoedeBrig	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 19:12 - CEST	Paris	3909	positive
BomberNolan	@raymonddelauney hats off to @georgegalloway for his stance on #EUref #brexit #Lexit this is the second time I've agreed with him, fuck!!	23 Jun 2016, 19:12 - CEST		0	NA
elearning_utad	#Universidades | Brexit: que consequÃªncias para o ensino superior?: SÃ£o quem mais bolsas r... https://t.co/vi51lNHl6B | #EnsinoSuperior	23 Jun 2016, 19:12 - CEST	Vila Real, Portugal	0	negative
Eyeintomyworld	RT @DarrenMole: Lies Talks with Turkey will start in days Brexit WON'T spark trade war Eu will NOT reform on open borders & deportation jobâ€¦	23 Jun 2016, 19:12 - CEST		6	NA
RealBiZl1	RT @MenInBoxes: #EUreferendum #EUref #BrexitOrNot #Brexit #VoteLeave https://t.co/nBa3TVNyao	23 Jun 2016, 19:12 - CEST		18	positive
lindongoodall	My full educated view I'm #brexit #leave	23 Jun 2016, 19:12 - CEST	Hereford, England	0	positive
angel1mcy	RT @pictoline: La Batalla del Brexit ha comenzado: Reino Unido estÃ¡ votando si se va o se queda en la UniÃ³n Europea https://t.co/AudmrcOx20	23 Jun 2016, 19:12 - CEST	San JosÃ© de Maracay, Aragua	1014	NA
nderi_j	RT @cobbo3: What's wrong with today's British rulers? A critical #Brexit vote & they haven't blocked Twitter and Facebook like some countriâ€¦	23 Jun 2016, 19:12 - CEST		58	NA
Cato_Minor	Die Ehe ist wie die EU. Also wie eine belagerte Burg: Die drauÃŸen sind wollen rein und die drin sind wollen raus. #brexit	23 Jun 2016, 19:12 - CEST		0	NA
ampatcharak	'Brexit' à¸à¸²à¸ˆà¸¡à¸µà¸œà¸¥à¸•à¸£à¸°à¸—à¸š 'Game of Thrones' https://t.co/4uaJLsPYyx	23 Jun 2016, 19:12 - CEST	...BKK... THAILAND...	0	NA
Gr8LakesCzarina	#VoteLeave â€œwould not only free the Brits fromâ€¦ EU, it would profoundly shake up the other	23 Jun 2016, 19:12 - CEST	Hurtling into the abyss	0	positive

	membersâ€□â€”@AmbJohnBolton https://t.co/Z3aOfq7Zx0				
hawkgirl1988	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/7NBSSRqp0H	23 Jun 2016, 19:12 - CEST	Sheffield, England	0	NA
nasosgrigo	RT @pitsirikos: Î´Î½ Î½Î¹ÎºÎ®ÏƒÎµÎ¹ Ï„Î¿ Brexit, Î±Ï•Ï•Î¹Î¿ Ï„Î¿ Ï€Ï□Ï‰Î¯ Î¿ ÎšÎ¬Î¼ÎµÏ•Î¿Î½ Î¸Î± Î´Î¹ÏŽÎ¾ÎµÎ¹ Ï„Î¿Î½ Î´Î±Ï□Î¿Ï…Ï†Î¬ÎºÎ·. #BrexitOrNot #BremainVsBrexit #EUref	23 Jun 2016, 19:29 - CEST	ÎŸÏ€Î¿Ï… Î³Î±Î¼Î¿Ï, ÎºÎ±Î¹ Ï‡Î±Ï•Î±..	3	negative
RafaelGtrrz	"Brexit", con impacto transitorio en mercados, afirman especialistas	23 Jun 2016, 19:29 - CEST	Mexico	0	NA
MUFC_E334	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/MpQlTqwamT	23 Jun 2016, 19:29 - CEST	M6	0	NA
Heath20Robert	RT @PaulJamesOakley: #iVoted. Proud to be one of millions of Brits looking forward to a bright future outside the EU. #Brexit https://t.co/â€¦	23 Jun 2016, 19:29 - CEST	IN ENGLAND.	7	NA
DrEzekiel_	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/sYvRbuvtXR	23 Jun 2016, 19:29 - CEST	A nearly peaceful place	0	NA
pipsfinder	#Pipsfinder Instant: RT HalftimeReport: John Rogers, CEO of ArielFunds gives his #brexit sâ€¦ https://t.co/AvxpayPoHE https://t.co/6NVNDBG6xQ	23 Jun 2016, 19:29 - CEST	WORDLWIDE	0	NA
EAGCharlesB	RT @Citizensmif21: Every vote counts! Make sure everyone you know with a vote gets out there! #VoteLeave #LabourLeave #EUref #Brexit https:â€¦	23 Jun 2016, 19:29 - CEST	Oxfordshire	5	positive
bethomas__	I'm actually terrified that Brexit may win on the back of extreme weather preventing people (like me) from reaching a polling station	23 Jun 2016, 19:29 - CEST	SW9	0	NA
SmurfyJCK	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/7AWxvBFUs7	23 Jun 2016, 19:29 - CEST	Bristol	0	NA
BalcoSERCAT	EN DIRECTE, parlem amb @polmorillas @CidobBarcelona sobre #Brexit amb Ã²ptica catalana https://t.co/7d9P3rc4tX	23 Jun 2016, 19:29 - CEST	Catalunya	0	NA
realdrishaym	Investors feeling positive over Brexit outcome https://t.co/HWMfUyPROT	23 Jun 2016, 19:29 - CEST		0	NA
pig_poetry	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 19:29 - CEST		4066	positive
sectradeideas	Wall Street marches ahead as Brexit seen unlikely https://t.co/AafMQ2urj2 via @Reuters	23 Jun 2016, 19:29 - CEST	Novato, CA	0	NA
GeorgeWoodEFC	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/yiad4nFvhD	23 Jun 2016, 19:29 - CEST		0	NA
capitalgr	Î ÏŽÏ‚ Î²Î»ÎÏ€Î¿Ï…Î½ Ï„Î¿ ÎµÎ½Î´ÎµÏ‡ÏŒÎ¼ÎµÎ½Î¿ Brexit Î¿Î¹ ÎµÎ»Î»Î·Î½Î¹ÎºÎÏ‚ Ï„Ï□Î¬Ï€ÎµÎ¶ÎµÏ‚ https://t.co/CdwzKmkpR4	23 Jun 2016, 19:29 - CEST	Athens, Greece	0	NA

kironetv	The latest The kironetv Daily! https://t.co/ey7MQ3bMK4 Thanks to @maryebrewer @LeBronJames #brexit #euro2016	23 Jun 2016, 19:29 - CEST		0	NA
TheAbsTimes	Brexit is just one example of the political problems Europe is facing https://t.co/S0pRApnz2c https://t.co/yvvGwSc4b4	23 Jun 2016, 19:29 - CEST	Worldwide	0	NA
_logan	@jfcarpio si gana el Brexit Escocia e Irlanda planean nuevos referendum sobre permanencia en UK, para volver a EU jaja	23 Jun 2016, 19:29 - CEST	Lincoln, NE	0	NA
ggomezQ	RT @infinitafm: Salario mÃnimo,marcha estudiantil, Brexit,Farc,la Roja y mÃ¡s AHORA en @mundoinfinita con @ggomezQ y @valenzuelagabi â†'https:â€¦	23 Jun 2016, 19:29 - CEST	chile	1	NA
f_beavis	RT @RoyCropperNOT_: Me and Ken just kicked out the polling station for shitting in the ballot box. #Brexit https://t.co/kp2cgUUIjL	23 Jun 2016, 19:29 - CEST		125	NA
stevenjohncole	RT @V_of_Europe: Who is the shooter in Germany? Is the German media censoring Islamic again to avoid a 'pro Brexit effect' in the UK? httpsâ€¦	23 Jun 2016, 19:46 - CEST	stoke on trent	38	NA
TrumptonCBI	RT @disclaimermag: Editorial: Damn the Houses of #Brexit and #Bremain by voting with enthusiasm #StrongerInEurope: https://t.co/GGblEGk6mgâ€¦	23 Jun 2016, 19:46 - CEST	Trumptonshire	2	negative
Paul1Singh	RT @b_tweet: PSA to my UK friends: #usepens for your Brexit "leave" vote or else squads of MI5 agents armed with erasers will furiously eraâ€¦	23 Jun 2016, 19:46 - CEST	City of London Europe	1	positive
Pharmdca	@paulwoll agree Paul. Everyone expecting bremain not brexit. iam cautious here as nothing factored in if we get a surprise brexit vote	23 Jun 2016, 19:46 - CEST	California, USA	0	negative
SOTWIFUNNY	I hope the citizens of #Britain make the right decision and do a #Brexit	23 Jun 2016, 19:46 - CEST	United States	0	NA
FN_Nachrichten	BREXIT/ROUNDUP 4: Historisches EUReferendum spaltet GroÃŸbritannien Rennen eng https://t.co/8GFyRLBHM1	23 Jun 2016, 19:46 - CEST	ZÃ¼rich	0	NA
maria_parra58	RT @gaceta_es: El Brexit, a la luz de la moral https://t.co/rTrDezDPVc https://t.co/qDOk8a8Nzv	23 Jun 2016, 19:46 - CEST	La CoruÃ±a, Galicia EspaÃ±a.	1	NA
BenDeCosimo	#Brexit ppl who be like "we want OUR DEMOCRACY BACK" https://t.co/3ztuz9w3nu	23 Jun 2016, 19:46 - CEST	London	0	neutral
DinoFancellu	RT @BritishAwake: Absolutely positively the last throw of the dice from #Remain #Brexit you have been warned! https://t.co/K4qzeXE8CN	23 Jun 2016, 19:46 - CEST	United Kingdom	8	negative
SolidSnakeUk89	Pencilgate erupts as police called to EU referendum polling station after woman lends other voters her PEN https://t.co/p9xE1SmsGH	23 Jun 2016, 19:46 - CEST	Around the world	0	NA
zoecorkhill	I liked a @YouTube video https://t.co/WMe5JWSvUd James Corden on Brexit: Vote to Stay in the EU	23 Jun 2016, 19:46 - CEST	Birmingham, UK	0	NA

victorbenito86	RT @quiquepeinado: Si gana el Brexit, Â¿Islandia pasa a cuartos?	23 Jun 2016, 19:46 - CEST	Arganda del Rey	104	NA
L_Amalgameur	Etant donnÃ© que les gens qui sont pour le #Brexit sont des arriÃ©rÃ©s, vous ne les entendrez pas sur @franceinfo. Aucun intÃ©rÃªt. #RÃ©sumÃ©	23 Jun 2016, 19:46 - CEST	FR... enfin ce qu'il en reste	1	NA
MuriMursic	@MatevzNovak @lucijausaj do izbrane meje tudi jaz podpiram #Brexit. UpoÅ¡tevaje politiÄ•no evolucijo naslednikov partizanov pa?	23 Jun 2016, 19:46 - CEST	Å tajerska	0	NA
KikoPeres	Brexit {Britain exiting the EU} ~ The Movie Full Film https://t.co/FgbcIOgcJY via @pfc_net	23 Jun 2016, 19:46 - CEST	Brasil	0	NA
JMokha_	RT @missingfaktor: Brexit. Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 19:46 - CEST	Kitwe	6011	positive
Blake2_0	RT @robmanuel: A vote for Brexit is a vote for a man who doesn't understand how capos work. https://t.co/QNRLaaE5GX	23 Jun 2016, 19:46 - CEST	Lincoln	7589	NA
SexenioCDMX	David Cameron emite su voto en el #Brexit https://t.co/xzWNVELbB8	23 Jun 2016, 19:46 - CEST	Distrito Federal	0	NA
Capezzone	RT @formichenews: Chi soffrirebbe di piÃ¹ con la Brexit L'intervento di Daniele Capezzone https://t.co/I2SiG5iWZM	23 Jun 2016, 19:46 - CEST		1	NA
sallyshin	RT @CNBCSocial: In a stunning turn of events, it's raining in London. That won't stop CNBC's @kaylatausche from reporting #Brexit â˜” https:/â€¦	23 Jun 2016, 19:46 - CEST	New York, NY	13	NA
saints247	People are losing their minds and humour over #Brexit Slagging each other off because you think different to them. Shame.	23 Jun 2016, 20:03 - CEST	Southampton	0	negative
FearAnLoathin	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/f2UkOorndM	23 Jun 2016, 20:03 - CEST	Brighton - IG: FearAnLoathin	0	positive
yoga4tea	RT @TheCanarySays: However Britain votes today, David Cameron is f*cked https://t.co/1OfJn4w34A #olsx #euref #ivoted #remain #brexit #VoteLâ€¦	23 Jun 2016, 20:03 - CEST		25	negative
FrenchForTrump	RT @JaredWyand: Howâ€™s it feel Brits knowing the Muslim population you let in is voting against your independence today? #Brexit #VoteLeaveâ€¦	23 Jun 2016, 20:03 - CEST	Miami, FL	87	positive
annecagle	https://t.co/w5NMjiQgKV #brexit Please don't leave.	23 Jun 2016, 20:03 - CEST	Pacific Northwest	0	positive
TimBukOne NEWS	$JSESBK #STANBANK View article https://t.co/4BVtCTtaZv https://t.co/kIxlYCmWt5	23 Jun 2016, 20:03 - CEST	South Africa	0	neutral
davidkski	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 20:03 - CEST	Yardley Pa-NYC & in-	5318	neutral

			between		
sonalewsr	RT @ianbremmer: This is what the Brexit ballot looks like, for those curious. https://t.co/XWH5WXLMCV	23 Jun 2016, 20:03 - CEST	Adelaide, South Australia	151	neutral
leechjoe21	RT @Y_Eurosceptics: #Brexit guarantees accountable leaders, controlling immigration, signing our own trade deals & no more eurozone bailoutâ€¦	23 Jun 2016, 20:03 - CEST		15	negative
MaggieLearmonth	RT @ARTQUESTLONDON: What today might mean for artists https://t.co/nWiNtE4Lks via @hyperallergic https://t.co/daQ2RPDdpM	23 Jun 2016, 20:03 - CEST		8	neutral
FuckBoats	RT @RealAlexJones: #Brexit Insider: EU The â€˜New Soviet Unionâ€™ https://t.co/XtSlcLzqvu	23 Jun 2016, 20:03 - CEST	â•½ Â´-`â•¾	7	neutral
TheTradingSheep	RT @Stop_The_EU: It's time to take back control #Brexit #VoteLeave https://t.co/ScqneMkfn2	23 Jun 2016, 20:03 - CEST		162	positive
ophuels	18hrs and counting: Im Liveblog berichten wir die ganze Nacht durchgehend aus London. https://t.co/r8EtnZw2zH #HandelsblattUK	23 Jun 2016, 20:03 - CEST	DÃ¼sseldorf	0	positive
fonsvyncke	Eentje uit oude doos,nog brandend actueel#brexit https://t.co/80CUUgy9od	23 Jun 2016, 20:03 - CEST		0	negative
AK47Gooner	That same paranoia that makes people ignore what almost every major organisation advises on #brexit is now making them spoil their vote!	23 Jun 2016, 20:03 - CEST	Guildford	0	negative
majowski1959	Brexit. Co moÅ¼e czekaÄ‡ PolakÃ³w mieszkajÄ…cych na Wyspach https://t.co/pk8o3BUDo1	23 Jun 2016, 20:03 - CEST	Derby UK	0	neutral
UnknownLibra	RT @lesoir: #vidÃ©o Â«Remain or leaveÂ»: la pluie pourrait faire basculer le #Brexit https://t.co/2VG4kY6WjC https://t.co/LRFSSXLd8E	23 Jun 2016, 20:03 - CEST		1	negative
santhusitay	RT @washingtonpost: 8 Brexit voters reveal their thoughts on Europe https://t.co/VqAHDXM79O https://t.co/0iUt6Leuco	23 Jun 2016, 20:03 - CEST	Ciudad AutÃ³noma de Buenos Aire	18	negative
i_libros	RT @OpenBritain: Labour MPs with a genuine interest for workers understand the #EU #EURef #Brexit #Lexit #LabourLeave @labourleave https:/â€¦	23 Jun 2016, 20:03 - CEST	176 countries	27	positive
AnaPauVdz	Brexit	23 Jun 2016, 20:03 - CEST	Mexico	0	neutral
danhurrell1988	RT @MichelleDewbs: IBeen frustrated by people who feel that voting for Brexit is somehow 'backward thinking'. I'm outward looking but to thâ€¦	23 Jun 2016, 20:20 - CEST	Richmond, England	103	negative
antoniobb1953	RT @AmbBatet: Defensem mÃ©s integraciÃ³ i ens oposem als populismes que volen destruir el projecte europeu, com avui mateix veiem #Brexit #unâ€¦	23 Jun 2016, 20:20 - CEST		4	negative

CaimanValores	Commented on Market Prices Brexit Failure; For Colombia, The War Is Over Bezek's Daily Briefing https://t.co/J8mLMxP6t4 $GXG $DEO $EC $CIB	23 Jun 2016, 20:20 - CEST	Colombia	0	neutral
faizwahab	RT @WSJ: Why a Brexit matters to the U.K. auto industryâ€"Live coverage of EU referendum vote: https://t.co/TitHSlPmFn https://t.co/rHP4DTGyGX	23 Jun 2016, 20:20 - CEST		29	neutral
cerecun	RT @JazRabadia: The @EnergyInstitute #EnergyBarometer suggests impacts of brexit negative on the world of Energy https://t.co/d3Sl5BarFZ	23 Jun 2016, 20:20 - CEST		1	negative
dmedri	Sleepless in the City Lets Traders Bet Billions on Brexit Result https://t.co/xH3J2l4VWm #business #trading #finance	23 Jun 2016, 20:20 - CEST	Italy / Europe	0	negative
HighTechAztec	RT @Newsweek: EU referendum live coverage: Britain heads to the polls for historic vote https://t.co/hTN517ePCa #Brexit	23 Jun 2016, 20:20 - CEST	Houston, TX	9	neutral
Wozdog2	Another reason to #Brexit https://t.co/4MwQ8RNL9J	23 Jun 2016, 20:20 - CEST		0	neutral
JoseMa_Rouge	RT @teleSURtv: Conoce todo sobre la posible salida del #ReinoUnido de la UniÃ³n Europea. #Brexit >>>> https://t.co/CqtLV2FPw3 https://t.co/kâ€¦	23 Jun 2016, 20:20 - CEST	Ciudad de MÃ©xico.	5	neutral
valubit_news	New post: Gold Ends Lower; RiskOn Marketplace Just Ahead Of Brexit Results https://t.co/Hdu72cl2Kz	23 Jun 2016, 20:20 - CEST	United States	0	neutral
atlanta_amy	You know what's offtopic interesting about #brexit & #remain to me as an American? The UK still votes on paper. I miss paper voting.	23 Jun 2016, 20:20 - CEST	Atlanta, GA	0	negative
DarrenMeadows10	A man was seriously injured after being stabbed outside a polling station. https://t.co/7MoS20RVry	23 Jun 2016, 20:20 - CEST	Horden, County Durham, England	0	negative
DuncanOldham	I keep looking at my Spanish neighbours wondering if they're thinking "Let's hope he pisses off back to the UK!" #Brexit	23 Jun 2016, 20:20 - CEST	EspaÃ±a	0	negative
scarbro8	RT @D_Blanchflower: doesn't often happen but we certainly agree Brexit looks like a potential disaster in the making https://t.co/XzFvlfMQâ€¦	23 Jun 2016, 20:20 - CEST		2	negative
trxtrx1	RT @pinobici: @SkyTG24 dallo studio : "code per cambiare Â£ in â‚¬". Inviato a Londra "no francamente non mi risulta" Comici! #Brexit	23 Jun 2016, 20:20 - CEST		8	negative
casiosr	RT @MarkusSuedwitz: Brexit at Tiffany's #brexitfilme	23 Jun 2016, 20:20 - CEST	Hamburg	1	neutral
euanfranklin	RT @RoosterTeeth: Gus, Gavin, Brandon, Chris, and special guest Sally Le Page discuss Brexit, tits, and more! https://t.co/hfPbJu4eXs httpâ€¦	23 Jun 2016, 20:20 - CEST	Southampton, England	40	neutral
fryliemingogue	@OurSonJack Never mind brexit, I am more concerned about whether I can actually get all this yogurt eaten :)	23 Jun 2016, 20:20 - CEST		0	neutral

simpleman01	RT @NetizenNick: #VoteLeave on #Brexit to #LeaveEU. https://t.co/MyzTuyxeu5 #BrexitOrNot #EUreferendum #Britain #British #UK #EU #Replaceâ€¦	23 Jun 2016, 20:20 - CEST	Dorset.	6	positive
jcoralpark	RT @Italians4Trump: Twitter is censoring #iVoted #Leave Votes! 29 #Leave vs 139 #Remain Votes in 15 min! #Brexit #EUref #BrexitOrNot httpsâ€¦	23 Jun 2016, 20:20 - CEST	United States	82	negative
Kazi_France	â„¹ #Infos â€¢ Les jeunes britanniques sontils la clÃ© du rÃ©fÃ©rendum sur le Brexit?: Les jeunes Britanniques, maj... https://t.co/MOQPx5EzDw	23 Jun 2016, 20:37 - CEST	Ãœ.T: 48.866747,2.307372	0	positive
robotforexnews	BREAKING Brexit exit poll news! https://t.co/T6meEzizAr [red]	23 Jun 2016, 20:37 - CEST	Karachi, Pakistan	0	negative
fxtraderbasics	The Brexit vote is playing out in the market exactly like the Scottish referendum: Comparing the S... https://t.co/U7UOMFZP6c [#fxBlogs]	23 Jun 2016, 20:37 - CEST	MalmÃ¶, Sweden	0	positive
UTNONDICAM	Final opinion polls show Remain ahead of Brexit https://t.co/snJ2wT75XC	23 Jun 2016, 20:37 - CEST		0	negative
fxtraderbasics	BREAKING Brexit exit poll news!: Livesquawk in conjunction with the Press Association will be cond... https://t.co/bPDGWchYnd [#fxBlogs]	23 Jun 2016, 20:37 - CEST	MalmÃ¶, Sweden	0	negative
HATEMAGAZIN	RT @HenryksBruder: Nicht ferwechseln PLZ Propaganda Edition #Brexit #Bremain #BrexitOrNot #VoteLeave #StrongerIn #strongerineurope https:â€¦	23 Jun 2016, 20:37 - CEST	Berlin	2	neutral
kellythornalley	@Richardesty don't make a haste brEXIT you might LEAVE something!! Haha I got to stop with these now	23 Jun 2016, 20:37 - CEST	Boston, England	0	positive
pamelafoti	RT @SkyTG24: #Brexit, l'editoriale del direttore @sarahvaretto: https://t.co/BE7guRdpXo https://t.co/XfoQkdMPj6	23 Jun 2016, 20:37 - CEST		14	negative
Ed_Demolay	RT @Death2RapeGangs: Farageâ€™s final rallying call: â€˜Itâ€™s us versus the Establishment go and vote for #Britain' https://t.co/VAGZrFYnLm #Bâ€¦	23 Jun 2016, 20:37 - CEST	United States	7	neutral
runwildsafaris	RT @ReutersBiz: Brexit vote could make Friday freaky on Wall Street: https://t.co/HiOVxKEmAe https://t.co/t7onXNVKP3	23 Jun 2016, 20:37 - CEST	Pretoria, South Africa	15	positive
m_harboe	RT @tAEnketank: Hvis #Brexit bliver en realitet kan det koste op mod 13.000 danske job #dkÃ¸ko https://t.co/nVT0IofLbg	23 Jun 2016, 20:37 - CEST	Frederiksberg	2	positive
eqlia_nozomu	Brexit vote: What the UK potentially leaving the EU means for tech CNET https://t.co/d8ozi5y4cQ	23 Jun 2016, 20:37 - CEST	ã“ã“ï¼•	0	positive

InomineX	#Brexit Sie sollten ihr #BildungsbÃ¼rgertum Ã¼berdenken, wenn sie wie ein #Idiot (https://t.co/t8cZaReVCn) plappern https://t.co/FK0REzf7cd	23 Jun 2016, 20:37 - CEST	island	0	negative
imtiaz_sami	RT @sardesairajdeep: When I hear the 'Britain first' anti migrant rhetoric of the Brexit brigade, wonder if patriotism is last refuge of haâ€¦	23 Jun 2016, 20:37 - CEST	31Â°14' 29 N, 77Â°2'12 E	183	neutral
pure_singh	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 20:37 - CEST	Ludhiana, India	4534	positive
JulieMontoya20	Just voted in #EUreferendum. Goodbye freedom, low prices, human rights; hello uncertainty. At least I will know I did not vote for #Brexit.	23 Jun 2016, 20:37 - CEST		0	negative
pjv1968	@omnescontra1 @ZilteBotte Bij #Risk is het ook het moeilijkste continent om te veroveren en te houden. #EU #Brexit	23 Jun 2016, 20:37 - CEST		0	negative
lukegreen71	RT @ralphallwood: Britain is too great to vote for Brexit! Check out the important opinion piece by @Avaaz ED Ricken Patel: https://t.co/3fâ€¦	23 Jun 2016, 20:37 - CEST	London and Nottinghamshire	1	positive
TomLefek	It is going to be long long night... #Brexit #ForexTrade #Sterling #GBPUSD #InOrOut	23 Jun 2016, 20:37 - CEST	England	0	negative
ArnoLeblanc	Matt is Brit en studeert in Nederland. Hij denkt dat een #Brexit voor veel problemen zorgt voor hem. https://t.co/abKBkJ7W8D #nosop3	23 Jun 2016, 20:37 - CEST	Hilversum	0	negative
menzaghichristi	RT @LigueParis: .@MCVergiat et @CR_SOLIDAR dÃ©construisent le discours mÃ©diatique sur le #Brexit #150ansLigue https://t.co/H13DsWw1Vo	23 Jun 2016, 20:54 - CEST		1	negative
_ignaciomolina	RT @rielcano: Â¿Y si gana el â€œBrexitâ€• en el referÃ©ndum? @_ignaciomolina escribe sobre el complejo proceso de negociaciÃ³n https://t.co/2UNivNâ€¦	23 Jun 2016, 20:54 - CEST	Spain	1	neutral
StevePersonally	RT @Dakeb_MCFC: Even if the govt wanted to rescue the UK steel industry it can't. EU rules prevent state aid. #Brexit #IVotedLeave	23 Jun 2016, 20:54 - CEST	United Kingdom	46	positive
RealNinjetta	@Patriotic_Me #Merkel is one evil person and Google isn't much better We are being controlled #Brexit #EUreferendum https://t.co/enK1CO5eqg	23 Jun 2016, 20:54 - CEST	AMERICA	0	negative
jackthelad347	Daily Stormer: Brexit: Jo Coxâ€™ Death was Not a Tragedy and the World is a Better Place Without Her. https://t.co/1gzWhjCW5K Too True.	23 Jun 2016, 20:54 - CEST	Hell	0	positive
larsbecker	#brexit? Bei der @JEF_de und Policy Lab im Plan B an der @Leuphana_Uni. Die @NDRReporter sind auch gerade eingetroffen.	23 Jun 2016, 20:54 - CEST	Europe	0	neutral

christophercpa2	Come on #Britain make history and become self governing #Brexit	23 Jun 2016, 20:54 - CEST	The Hammer	0	neutral
Think_Blue_Sky	@TeessideWoes @FarndonDavid @GoldmanSachs Personally I would rather live in a worldwide street than a Euro culdesac #Brexit	23 Jun 2016, 20:54 - CEST	London	0	neutral
Coronach68E	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/pHF4cz7E3M	23 Jun 2016, 20:54 - CEST	Wrong side of the Solway	0	positive
MichaelWhite	@MakeVotesMatter On contrary , I merely correct naive PR errors of others, we have enough panacea politics for one day with Brexit	23 Jun 2016, 20:54 - CEST	UK	0	negative
jameskirkup	Last thought before disco nap: wrote this in March. Standing by it now: Remain wins, Cameron loses. https://t.co/Su6qS7tYbo	23 Jun 2016, 20:54 - CEST	London	0	negative
BenBridgway	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/30MMeplxaG	23 Jun 2016, 20:54 - CEST		0	positive
JobsterPoerst	RT @mkopNY: Let us be clear: #BREXIT is now a certainty, heavy rain all day tdy in #London favors the fevered, that is Brexiters https://t.â€¦	23 Jun 2016, 20:54 - CEST	New York	4	negative
talkbackny	RT @paleofuture: Brexit exit polls, probably Wut: 37% You havin a laff: 29% Oi mate: 71% Chim chimney chim chimney chim chim cheroo: 94%	23 Jun 2016, 20:54 - CEST	NYC	67	negative
CristinaAlessi1	RT @limesonline: Le universitÃ britanniche sono vs #Brexit Non solo x questione di principio https://t.co/jf8jNckFhU @EmiBarbiroglio https:â€¦	23 Jun 2016, 20:54 - CEST		14	neutral
beoxman	RT @beoxman: Â¿Apoyas el Brexit? #encuesta #Brexit #BrexitOrNot #uk	23 Jun 2016, 20:54 - CEST	Mi casa â‡„ resto del mundo.	1	neutral
HiConstantino	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 20:54 - CEST	GDL	5706	neutral
JonMelling1	RT @GrahamSmith_: Absolutely. Next referendum should be on the monarchy. https://t.co/dd7irj1vJS	23 Jun 2016, 20:54 - CEST	York	24	positive
BtzMedina	RT @DailyMirror: Brexit the horse ran at Newbury today but where did it finish? https://t.co/EibU4i8e86 https://t.co/Xekjy5zjfN	23 Jun 2016, 21:11 - CEST		5	negative
ghe4m	RT @HonourCovenant: #DavidCameron warns #Brits that their #Offshore #Panama #Inheritances will be at risk if they #VoteLeave #Brexit htâ€¦	23 Jun 2016, 21:11 - CEST		15	positive

emrachy	RT @WilfredFrost: What could follow Brexit? Italeave. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium. Or my personal favourite Dâ€¦	23 Jun 2016, 21:11 - CEST		839	positive
bolsamania	RT @madrid_almu: El Brexit se desinfla: las apuestas por la permanencia se disparan al 84% https://t.co/fODEyAU58Y vÃa @Bolsamania	23 Jun 2016, 21:11 - CEST	Madrid	1	negative
DuncanOleary	Nice @JohnRentoul piece looking at who the Remain and Leave voters are https://t.co/crP4InOusv	23 Jun 2016, 21:11 - CEST		0	positive
RosyKnight	RT @DavidJo52951945: Gigantic turnout of Labour voters in Northern England voting for leave https://t.co/OimMxv6jvO	23 Jun 2016, 21:11 - CEST	Yorkshire	73	positive
DunnyLFC_	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/yyOk5cwIKd	23 Jun 2016, 21:11 - CEST	fuck off x	0	positive
alysamartin_	Well if #Brexit happens and their economy crashes I'm hoping to get some cheap vacations out of the deal	23 Jun 2016, 21:11 - CEST	Hamburg, NY & Findlay, OH	0	negative
murray_33	RT @OnlineMagazin: â€¼Take 1 min. & 3 seconds: Europe is a war zone, the EU has nothing under control. Woman among savage. #Brexit now! httpâ€¦	23 Jun 2016, 21:11 - CEST		234	negative
CurlyMoustache1	RT @LudwigBollaerts: "For Â£ 100.000 I hold any sign" #brexit #bremain #socialism https://t.co/ZVXHYNFEGW	23 Jun 2016, 21:11 - CEST	Antwerp, Vlaanderen-Flanders	2	negative
Natt	@VienneseStrudel Yes, I thought I'd see what it was like in the dark heart of Brexit, but there's just a pall of despair everywhere.	23 Jun 2016, 21:11 - CEST	Redhill, Surrey	0	negative
gollyboys	RT @WSJ: Sterling soars after â€˜Brexitâ€™ poll shows preference to stay in EU https://t.co/uP2JKJOTLo https://t.co/hN6g345G79	23 Jun 2016, 21:11 - CEST		96	positive
AGreekCitizen	Î“Î¹Î± Î½Î¿Î¸ÎµÎ¯Î± Î¼Îµ Ï„Î· Î²Î¿Î®Î¸ÎµÎ¹Î± Ï„Î·Ï‚ MI5 ÎºÎ¬Î½Î¿Ï…Î½ Î»ÏŒÎ³Î¿ Î¿Î¹ Ï…Ï€Î¿ÏƒÏ„Î·Ï�Î¹ÎºÏ„ÎÏ‚ Ï„Î¿Ï… Brexit: Î£Î²Î®Î½Î¿Ï…Î½ Ï„Î¹Ï‚ ÏˆÎ®Ï†Î¿Ï…Ï‚ ÎºÎ±Î¹ Ï„Î¹Ï‚ Î±Î»Î»Î¬Î¶Î¿Ï…Î½..... https://t.co/0BQJvBr69Q	23 Jun 2016, 21:11 - CEST		0	neutral
ADOREMADZ	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/H4JJEdu8Qp	23 Jun 2016, 21:11 - CEST	georgie & tuesday	0	positive
FamieRednap	@toadmeister @vote_leave Well done Toby,your on my one to watch out for in the future list #brexit #VoteLeave	23 Jun 2016, 21:11 - CEST	London, England	0	positive
malazihernadla	kod mene na twitteru #Brexit ne trenduje . ma sve nas zabole :)	23 Jun 2016, 21:11 - CEST	ThÃ¼ringen, Deutschland	0	positive
MSL2769	RT @MoneyWeek: Bernard Connolly: why George Soros is wrong about Brexit and the pound https://t.co/vmx6Dlw4lZ https://t.co/WQb1EADIpE	23 Jun 2016, 21:11 - CEST	50.1065, -5.5551	2	negative

EwanLawry	@DavidJo52951945 @LouiseMensch Don't forget, Ken Livingstone will emigrate if we #Brexit	23 Jun 2016, 21:11 - CEST	Birmingham, England	0	negative
william_whyte	If my road is representative, there won't be any votes for #brexit. Then again, this is North Oxford. We voted for AV in the last one.	23 Jun 2016, 21:11 - CEST	Oxford, UK	0	negative
emmstoen	RT @Zziagenio78: Studio Aperto consiglia all'Inghilterra di non uscire dall'Europa nelle ore piÃ¹ calde, bere molta acqua e mangiare tanta fâ€¦	23 Jun 2016, 21:11 - CEST	pluto	361	positive
CouncillorEd	RT @NicholasPegg: â€™Twas Brexit, and the slithy Goves Did lie and grumble in the Mail, All Menschy were the Boris droves, And Nigel Farage iâ€¦	23 Jun 2016, 21:28 - CEST	Holywell, Wales United Kingdom	11	negative
50106019HIST	RT @FT: From the archive: Here's why Americans are so alarmed by the Brexit vote https://t.co/g6BlstyfFT https://t.co/snNXuwtL9Q	23 Jun 2016, 21:28 - CEST	Liverpool	21	negative
Efecto_Gamonal	RT @wikileaks: LIVE NOW: The #BrexitClub with #Assange, MIA, Varoufakis & others discussing UK referendum to leave the EU https://t.co/LVU0â€¦	23 Jun 2016, 21:28 - CEST	Gamonal Neighbourhood	48	positive
Farazzle92	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/pYY5oYPhBq	23 Jun 2016, 21:28 - CEST	Nottingham, England	0	positive
TheGrahamF	@timothydclark should've said Brexit polls!hahagaha oh god please don't leave the EU :(	23 Jun 2016, 21:28 - CEST		0	positive
krisrow09	https://t.co/yV0sMVxTaM I mean, you have my attention, Brexit.	23 Jun 2016, 21:28 - CEST	Omaha, NE	0	negative
Indysco500	@McFc_Winners @beckymparry seriously I don't think I can lose, remain I'll be happy, brexit and we get indy so even better 1/2	23 Jun 2016, 21:28 - CEST	Scotland	0	negative
bogdy_tinna	RT @FrDesouche: Comme pour l'Autriche, BFM ne fait des reportages sur le #brexit que dans les quartiers chics ou immigrÃ©s	23 Jun 2016, 21:28 - CEST	Paris, France	60	negative
hsandeman	RT @toadmeister: Just been knocking up on a council estate in Hammersmith. Leave outnumbered Remain by 20:1 #Brexit https://t.co/SFnC1efWgv	23 Jun 2016, 21:28 - CEST	Hampshire UK	100	negative
WIRED	Brexit backers are forgetting that the internet erases borders: https://t.co/g8jPUcl05B https://t.co/jprx7SDk3V	23 Jun 2016, 21:28 - CEST	San Francisco/New York	2	negative
PMN81	RT @amirsadjady: Remain camp says there's no post #brexit economic plan, what's "their plan" when the last ounce of UK sovereignty is diminâ€¦	23 Jun 2016, 21:28 - CEST	Redditch, Worcs	77	negative
jonathan_repp	RT @thedragonschool: Dragons held their own #debate today #EUref #InOrOut #Remain won, stealing 3 votes from their opposing Brexit team! hâ€¦	23 Jun 2016, 21:28 - CEST	Here, there and everywhere	1	negative

CancunVaConMau	Peso sin efectos por Brexit; dÃ³lar baja mÃ¡s de 20 centavos y cotiza en 18.30 https://t.co/xBBUXYlrJs	23 Jun 2016, 21:28 - CEST		0	negative
EgemenKY	RT @AlnusFX: Dr. K. DaÄŸhan GÃ¶kÃ§e canlÄ± yayÄ±nda Brexit'i deÄŸerlendiriyor. 24/06/2016 saat 01:00 https://t.co/rgacecJl8q https://t.co/Ntkâ€¦	23 Jun 2016, 21:28 - CEST	Ä°stanbul	1	neutral
NewsPuppet	These are people stranded by extreme weather on Brexit day, who are likely not going to be able to vote. https://t.co/uBldzVK1pY	23 Jun 2016, 21:28 - CEST	San Diego, CA	0	negative
PropertyHelping	RT @Dorian_Belvoir: Buytolet mortgage rates fall on Brexit fears and stamp duty hangover https://t.co/c4HHZFBtJ4 #mortgage #property	23 Jun 2016, 21:28 - CEST		3	negative
KushRatna	RT @CNN: What would a #Brexit mean for you? Our guide: https://t.co/e2zBtTQQYm #EUref https://t.co/olxKFUHneH	23 Jun 2016, 21:28 - CEST	KENYAFRICA	85	negative
1Flow	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/QEzMJdTAWM	23 Jun 2016, 21:28 - CEST		0	positive
nufcno1fan	RT @MikeHookemMEP: BREXIT BOOT: Ten of UKâ€™s most distinguished retired military officers call for Leave vote https://t.co/yi26B0tkDS	23 Jun 2016, 21:28 - CEST	Newcastle/Gateshead	40	positive
ellisaddick	RT @igeldard: LEAVE before the EU manages to create its own armed forces #VoteLeave and #Brexit in the #EUreferendum https://t.co/IhLid1EFta	23 Jun 2016, 21:28 - CEST	Mottingham	10	positive
markdmortimer	I #VoteOut for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/mnAAbNBh13	23 Jun 2016, 21:45 - CEST	leeds	0	positive
SarwarDeSoto	RT @Truce_JTTM: Older people of #Britain, please don't ruin our future on Thursday. The majority of the younger people want to stay. #voteâ€¦	23 Jun 2016, 21:45 - CEST	Derby, England	13	negative
6byNine	RT @NicholasPegg: â€™Twas Brexit, and the slithy Goves Did lie and grumble in the Mail, All Menschy were the Boris droves, And Nigel Farage iâ€¦	23 Jun 2016, 21:45 - CEST	England	123	negative
pang5	RT @ianbremmer: Stop calling it 'Euroskepticism.â€™ Itâ€™s really â€˜Eurohostilityâ€™â€”and itâ€™s not going away. My latest for @Time. https://t.co/5xâ€¦	23 Jun 2016, 21:45 - CEST	Tehran	60	negative
HelenB_Scape	RT @ScapeCEO: With the #EUref finally upon us Victoria Brambini discusses how a #Brexit could affect the #publicsector @psenews https://t.câ€¦	23 Jun 2016, 21:45 - CEST	Nottingham, England	5	negative
ANDREAZANETTIN	RT @franzrusso: #Brexit dall'analisi dei tweet nelle ultime 24 ore #Remain prevale su #Leave by @blueclaw #socialmedia #politics https://tâ€¦	23 Jun 2016, 21:45 - CEST		17	negative
gmcstockpicks	RT @moneymorning: How a #Brexit today could mean a @realDonaldTrump presidency tomorrow: https://t.co/0QyyHvsu9X	23 Jun 2016, 21:45 - CEST	Houston, Texas	1	negative

olympius23	RT @LouDobbs: Why Would Brexit Not Pass? Video shows 'woman tourist' attacked by mob in Paris https://t.co/kYJ2cEnm3o via @MailOnline #Amerâ€¦	23 Jun 2016, 21:45 - CEST		213	negative
oscaron	So. Are there any #brexit results so far?	23 Jun 2016, 21:45 - CEST	Galactic Sector ZZ9 Plural Z A	0	negative
RuggAlan	RT @Dwalingen: VOTE! Don't stay home. Don't think the battle is won. Vote & celebrate UK Independence Day. #Brexit #VoteLeave #EU https://tâ€¦	23 Jun 2016, 21:45 - CEST		42	positive
NikolausVonMyra	RT @GideonBoess: Wer fÃ¼r #Brexit ist,will wieder die Weltmeere beherrschen.Danke, @heutejournal,jetzt weiÃŸ ich Bescheid. Dachte schon, es wâ€¦	23 Jun 2016, 21:45 - CEST		93	neutral
lvphillies08	RT @CodeAud: What at stake with #Brexit? How #Brexit is important for the future of #Europe ? https://t.co/sO34Lm4vfe	23 Jun 2016, 21:45 - CEST	LAS VEGASLAND	10	positive
kristenbgrant	RT @willrahn: For all those following #Brexit today, here's a quick and easy guide to the British class system. https://t.co/TLeCrRMTVd	23 Jun 2016, 21:45 - CEST		368	positive
Viterbiensis	@owenjbennett Good man Owen. BREXIT all the way.	23 Jun 2016, 21:45 - CEST	Viterbo	0	positive
crmazu	RT @pictoline: La Batalla del Brexit ha comenzado: Reino Unido estÃ¡ votando si se va o se queda en la UniÃ³n Europea https://t.co/AudmrcOx20	23 Jun 2016, 21:45 - CEST	Tegucigalpa, Honduras	1427	neutral
NVJRobins1	RT @Avaaz: Just 1.5 hours left to go vote! We are stronger together. Choose Love #VoteRemain #EUref #Brexit #referendum https://t.co/2akâ€¦	23 Jun 2016, 21:45 - CEST	London	22	negative
zamamiyagarei	RT @Reuters_co_jp: è‹±å›½ã⍰®æ®‹ç•™æ”¯æŒ⍰52ã€⍰é›¢è„±æ”¯æŒ•48ã‚¤ãƒ—ã‚½ã‚¹ãƒ¢ãƒªèª¿æŸ» https://t.co/AbGwflR69h	23 Jun 2016, 21:45 - CEST	äº‹å‹™æ‰€é–‹è¨-ï¼•æ•±äº¬éƒ½ä¸-å¤®åŒºå…œç”º	283	neutral
Jesus__Princess	@vote_leave @LeaveEUOfficial 800 Machines IGNORED CROSS Symbols Ballots #Brexit Computers Only Counted Remain Votes https://t.co/1wBgx45gOt	23 Jun 2016, 21:45 - CEST		0	negative
beautybythebun	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/DIdyg8DDiV	23 Jun 2016, 21:45 - CEST	Blackburn, England	0	positive
Mirrorart4uMala	EXCLUSIVE: Record Turnout Of Working Class Voters Revives Brexit Hopes https://t.co/al9Fa4uZcC	23 Jun 2016, 22:02 - CEST		0	positive
colingreen42	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/quFHnblWSq	23 Jun 2016, 22:02 - CEST	sheffield	0	positive

45rosalies	RT @KinaRestall: Another vote cast for democracy, hope & freedom âœ– #LeaveEU #Brexit #VoteLeave https://t.co/lth6mhCmC0	23 Jun 2016, 22:02 - CEST		131	positive
sirfofodot	RT @Independent: #dogsatpollingstations is back https://t.co/ygRdXrcx66 https://t.co/njyKdtIlgO	23 Jun 2016, 22:02 - CEST		134	neutral
deivida90277695	RT @eggpickled: #EU #Brexit #Leave https://t.co/XGgbAl3ZZo	23 Jun 2016, 22:02 - CEST		84	positive
electo_mania	Casi 46 millones y medio de britÃ¡nicos llamados a las urnas #brexit	23 Jun 2016, 22:02 - CEST		0	negative
xeniaalexia	Europe Union referendum: final hours of historic Brexit poll â€“ live https://t.co/jnpc3YJkhc	23 Jun 2016, 22:02 - CEST	Greece, Attica	0	neutral
MKwadyo	Brexit Backers Are Forgetting the Internet Erases Borders #afrogeek https://t.co/ONPPRWbhNJ	23 Jun 2016, 22:02 - CEST	Cote d'Ivoire	0	negative
MadchesterManc	A lot of generalisation going on regarding folks political persuasion during this #Brexit referendum. I mean, I'm a lefty and #IVotedLeave	23 Jun 2016, 22:02 - CEST	Bolton, England	0	positive
Rothchildhater	RT @JohnnyVedmore: #Remain in the EU and let sleeping dogs lay. #Brexit #VoteStay #VoteRemain #VoteLeave #EUref #StrongerIn https://t.co/vâ€¦	23 Jun 2016, 22:02 - CEST	Brockworth, England	9	positive
Paolodipinto	#maratonamentana #brexit #economisti #politici non capite un cazzo solo fiato #sprecato e purtroppo #superpagato	23 Jun 2016, 22:02 - CEST	italia	0	negative
jmsrobertson	RT @z_mississippi: Karl Rove has just called the #Brexit vote for Ohio	23 Jun 2016, 22:02 - CEST	Ridgeland MS	1	negative
OrlandoMilian9	RT @latelateshow: Ahead of Thursday's #Brexit vote, James expresses his support for the United Kingdom to remain in the EU. https://t.co/4Fâ€¦	23 Jun 2016, 22:02 - CEST	Florida, USA	146	negative
twilightbarkuk	RT @dotty4paws: Poppy voted biscuit not #Brexit! #dogsatpollingstations #EUref #EUreferendum #dogsoftwitter https://t.co/JDYg53wOzg	23 Jun 2016, 22:02 - CEST		2	neutral
sw1ayfe	Standing in the queue by 10pm YOU WILL GET TO VOTE. Your #EUref vote WILL COUNT. You can do this. We can do this. #brexit #remain	23 Jun 2016, 22:02 - CEST	London	0	negative
IBishil	No One to Trust: the Anger That Connects Brexit, Trump, Le Pen Bloomberg Politics https://t.co/qHIfuTGt6p	23 Jun 2016, 22:02 - CEST	Paris	0	negative
LondonBC	Polls close in just over an hour. Here's our whattowatch guide to #Brexit night. https://t.co/Gtu1AHwfVL via @business #EUref	23 Jun 2016, 22:02 - CEST		0	negative
sprakpunkten	#DI LÃ¥ng tid och hÃ¥rda fÃ¶rhandlingar fÃ¶re en brexit: Vad blir nÃ¤sta steg om Storbritannien rÃ¶star fÃ¶r att lÃ¤m... https://t.co/oiOF9fs26z	23 Jun 2016, 22:02 - CEST	Sverige	0	neutral
NoToSeparatism	The environment, public services & workers' rights are at risk from Brexit fascists. #VoteRemain #Remain #StrongerIN https://t.co/YuZVUhQfJ3	23 Jun 2016, 22:02 - CEST	Britain, Europe, Earth	0	negative
JohnG500	RT @FoxBusiness: Does Queen Elizabeth want the UK to stay or leave? https://t.co/AKO4aj74Lf #Brexit	23 Jun 2016, 22:02 - CEST	Charlotte, NC	2	positive

bryan_brbennett	RT @Dwalingen: VOTE! Don't stay home. Don't think the battle is won. Vote & celebrate UK Independence Day. #Brexit #VoteLeave #EU https://tâ€¦	23 Jun 2016, 22:19 - CEST	Breatainn MhÃ²r	64	positive
thekateyouknow	RT @XplodingUnicorn: Dear Britain, This Brexit vote is all wrong If you want to leave the EU, dump some tea in the harbor and fight a warâ€¦	23 Jun 2016, 22:19 - CEST	Brooklyn, NY	114	positive
Churchynet	RT @NicholasPegg: â€™Twas Brexit, and the slithy Goves Did lie and grumble in the Mail, All Menschy were the Boris droves, And Nigel Farage iâ€¦	23 Jun 2016, 22:19 - CEST	Sydney	830	negative
DenisClenvot	RT @Pat_Riot_72: Sortir de quoi au juste? Le UK n'est ni dans la zone Euro, ni dans l'espace Schengen. ^^ #Brexit	23 Jun 2016, 22:19 - CEST		1	negative
Alcodex	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 22:19 - CEST	U daljini, u dalekoj divljini	5253	positive
aass281564	RT @CNNMoney: Everything you need to know about UK immigration https://t.co/7GaYlllovO Via @AlannaPetroff #EURef https://t.co/lqc5v49Auq	23 Jun 2016, 22:19 - CEST	Ø§Ù„ÙƒÙˆÙŠØª	11	neutral
carsua6	RT @elcomercio: Te explicamos quÃ© es el #Brexit y cÃ³mo puede afectar a Reino Unido y a Europa en 3 minutos â–º https://t.co/53EOU5LVC1 https:â€¦	23 Jun 2016, 22:19 - CEST	argentina	9	neutral
AngieCurwen1	RT @Laura_Sandys: Think of future generations and the mess that they will have to pick up if we #Brexit vote remain @StrongerIn https://t.câ€¦	23 Jun 2016, 22:19 - CEST		60	negative
MariaADeVoe	RT @jeepgirl77: Dear UK, For all our sakes, I hope you vote #RemainINEU during the #Brexit voting. Sincerely, One of those colony kids	23 Jun 2016, 22:19 - CEST	where in the world?	1	negative
Rayonegro00	RT @felatriz88ATV: Los de Gibraltar estÃ¡n acojonados con el brexit, a ver quiÃ©n los enseÃ±a a ellos ahora a hablar inglÃ©s...	23 Jun 2016, 22:19 - CEST		1	positive
rillkon	RT @XplodingUnicorn: Dear Britain, This Brexit vote is all wrong If you want to leave the EU, dump some tea in the harbor and fight a warâ€¦	23 Jun 2016, 22:19 - CEST	Ð Ð¾Ñ•Ñ•Ð¸Ñ•	114	positive

BicMallary	RT @XplodingUnicorn: Dear Britain, This Brexit vote is all wrong If you want to leave the EU, dump some tea in the harbor and fight a warâ€¦	23 Jun 2016, 22:19 - CEST	Kentucky, USA	114	positive
eisengeheul	RT @XplodingUnicorn: Dear Britain, This Brexit vote is all wrong If you want to leave the EU, dump some tea in the harbor and fight a warâ€¦	23 Jun 2016, 22:19 - CEST	hi.mi.tsu.	114	positive
Daniele39260567	"I mercati sembrano dire no al Brexit. Ma non confondiamo la palla di neve con la valanga" https://t.co/blDuKflomc #economia #feedly	23 Jun 2016, 22:19 - CEST		0	negative
ZenMonkey	Adorable. Crossing my fingers for you, my friends. #Brexit https://t.co/A7PkcwX3GY	23 Jun 2016, 22:19 - CEST	California	0	positive
jpankow	Why is it taking so long to learn the results of the #Brexit vote? If this were the US, the AP would have already called it yesterday.	23 Jun 2016, 22:19 - CEST	Seattle	0	negative
julianbrowne	RT @Snowden: No matter the outcome, #Brexit polls demonstrate how quickly half of any population can be convinced to vote against itself. Qâ€¦	23 Jun 2016, 22:19 - CEST	Wokingham, UK	6354	neutral
JP_Stich	RT @nadrosia: Eltern Insider â†“ #brexit https://t.co/4hYGco8L1p	23 Jun 2016, 22:19 - CEST		2	negative
squadrat	Dieser massive VermÃ¶genstransfer, der heute innerhalb einer Nacht stattfindet, bekommt viel zu wenig Aufmerksamkeit. #zib2 #brexit	23 Jun 2016, 22:19 - CEST	Vienna, Austria	0	negative
Schepizza	I hope I get a cnn notification at 2 AM that's like "BREXIT OCCURING!!!" And then I feel the earth rumble.	23 Jun 2016, 22:19 - CEST	New York	0	negative
FinanciaOnline	RT @ReutersBiz: Here's everything you need to know about Brexit. https://t.co/tCEwq90f25 https://t.co/om9XcmPvRL	23 Jun 2016, 22:37 - CEST	London, England	5	neutral
ExpatSyndicate	UK expats debate Brexit vote from Saskatoon: As Britain prepares to vote in the historic Brexit refere... https://t.co/ifMMhPvQev #Expat	23 Jun 2016, 22:37 - CEST		0	neutral
JoannaInTexas	I see Brits getting upset with Americans for voicing opinions on #Brexit That's fine, but should you not likewise stay out of US politics?	23 Jun 2016, 22:37 - CEST	Dallas, Texas	0	negative
arxidobehs	RT @stefen61: Î´Î½ ÎÎ²Î»ÎµÏ€Î±Î½ Î±Ï…Ï„Î¬ Ï„Î± Î¾ÎµÏ†Ï„Î¹Î»Î¯ÎºÎ¹Î± ÏƒÏ„Î· Î´Ï�ÎµÏ„Î±Î½Î¯Î± Î¼ÎÏ‡Ï•Î¹ ÎºÎ±Î¹ Î¿ ÎšÎ¬Î¼ÎµÏ•Î¿Î½ Î¸Î± ÏˆÎ®Ï†Î¹Î¶Îµ Ï…Ï€ÎÏ• Ï„Î¿Ï… #Brexit https://t.co/eiDDpzltfV	23 Jun 2016, 22:37 - CEST		4	neutral
VeryValentina	These days, British people keep on reacting wrongly to problems... ;) #freeart #artinthestreets #brexit #freebody https://t.co/jE9ovWROy8	23 Jun 2016, 22:37 - CEST	Calgary, Canada	0	positive
alex_marchesini	Minchia, un dottorando! Bidelli a parlare della #brexit ne abbiamo? #portaaporta	23 Jun 2016, 22:37 - CEST		0	negative

chiefychiefton	RT @nypost: "Game of Thrones" fans should think twice before supporting #Brexit https://t.co/QFPwSORCgH	23 Jun 2016, 22:37 - CEST		23	neutral
Danbo12	I #VoteIn for the #Brexit #EURef vote with @Brndstr & unlocked my own Flag Profile pic! What will you vote? #ivoted https://t.co/PQXjWAwb9Z	23 Jun 2016, 22:37 - CEST	Essex/London, United Kingdom.	0	positive
rikkisawhney	[bnet] U.S stocks rally as U.K. votes on Brexit: 230point leap lifts Dow industrials back above 18,000, firs... https://t.co/GrGPkJQCTJ	23 Jun 2016, 22:37 - CEST		0	neutral
ScouseJones1	Good night BritainIt was nice while it lasted!! I suppose I will wake up as an #eu citizen #RIP #LeaveEU #Brexit #FuckCameron	23 Jun 2016, 22:37 - CEST		0	positive
MAGA_PoEc	RT @nhk_news: ã€⍰ãƒ©ã,¤ãƒ–ãƒ–ãƒã,° ã,¤ã,®ãƒªã,¹å›½æ°'æŠ•ç¥¨ã€' æ—¥ã⍰®ãƒ¨ãƒ¼ãƒ-ãƒƒãƒ'ã•®ä¸»ã•ªæ ªå¼⍰å¸‚å ´ã⍰§ã⍰¯ã€⍰æ®‹ç•™æ”¯æŒ⍰ã⍰Œä¸Šå›žã⍰£ã⍰Ÿã⍰¨ã⍰„ã⍰†ä¸–è«–èª¿æŸ»ã⍰Œç™ºè¡¨ã⍰•ã,Œã⍰Ÿã⍰"ã⍰¨ã⍰‹ã,‰ã€⍰å¹…åºƒã⍰„éŠ˜æŸ„ã⍰§è²·ã⍰„æ³¨æ–‡ã⍰Œå¢—ã⍰ˆã€⍰æ ªä¾¡ã⍰¯å€¤ä¸Šã⍰Œã,Šã⍰—ã•¾ã•—ã⍰Ÿã€, https://t.co/F8oxUocpQX #nhk_news	23 Jun 2016, 22:37 - CEST	ã⍰¡ã,‡ã•£ã•¨å•³å¯„ã,Šã•ªå ´æ‰€	27	negative
AdamLukeEccles	RT @Telegraph: #EUref: It's not too late to vote. So long as you are in the queue by 10pm you will be fine https://t.co/AMLRF5dRye https://â€¦	23 Jun 2016, 22:37 - CEST	Doncaster, England	16	positive
AEIfdp	RT @DaliborRohac: Just leaving this here for the record https://t.co/Tsz0exEQkM #EUref #Brexit #RightSideOfHistory	23 Jun 2016, 22:37 - CEST	Washington, DC	1	negative
Viner67	RT @Dwalingen: VOTE! Don't stay home. Don't think the battle is won. Vote & celebrate UK Independence Day. #Brexit #VoteLeave #EU https://tâ€¦	23 Jun 2016, 22:37 - CEST	Whitchurch, Shropshire	94	positive
woobasher	RT @NicholasPegg: â€™Twas Brexit, and the slithy Goves Did lie and grumble in the Mail, All Menschy were the Boris droves, And Nigel Farage iâ€¦	23 Jun 2016, 22:37 - CEST	Quiet Suburb of The Milky Way	998	negative
MsRoseHypnol	RT @UnaDiscamus: Come on UK We can do this! #independence #autonomy #IVotedLeave #democracy #sovereignty #Brexit #freedom https://t.â€¦	23 Jun 2016, 22:37 - CEST	Blackpool (spiritual home)	28	positive
MidelfartJana	RT @SPIEGEL_Politik: Hier steht fÃ¼r welche Uhrzeit ihr euch heute Nacht den Wecker stellen solltet. #BrexitOrNot #EUref https://t.co/uGPNZmâ€¦	23 Jun 2016, 22:37 - CEST		5	negative
noleftwing	RT @JediEconomist: Final Bloomberg #Brexit roundup.... https://t.co/EFE4cQ4POh	23 Jun 2016, 22:37 - CEST		4	negative

KeralaGuy77	@michaelsantoli if #brexit wins buy any massive dip and sell rips. If #Brexit loses, buy dips if it happens or chase also :)	23 Jun 2016, 22:37 - CEST		0	negative
djdom1uk	7 signs that Brexit is really happening https://t.co/maf0973ZZy via @POLITICOEurope #Brexit #LeaveEU #IndependanceDay #VoteLeave	23 Jun 2016, 22:37 - CEST	England	0	positive
Digi24_HD	BREXIT | Emil Hurezeanu, despre consecinÈ›ele referendumului din Marea Britanie https://t.co/7E9or6kJ0y	23 Jun 2016, 22:54 - CEST	RomÃ¢nia	0	negative
last_hussar	Me leaving the polling station #Brexit #EUref #Remain https://t.co/VH0TxyVsvd	23 Jun 2016, 22:54 - CEST	United Kingdom	0	negative
valentindignoes	RT @golub: 'Brexit' to be followed by Grexit. Departugal. Italeave. Fruckoff. Czechout. Oustria. Finish. Slovakout. Latervia. Byegium.	23 Jun 2016, 22:54 - CEST	Vienna, Austria	5494	positive
yoyen	7 menit lagi bilik suara tutup untuk #brexit	23 Jun 2016, 22:54 - CEST	Nederland	0	negative
daveb700	#brexit Mania! https://t.co/7U03uOTDVK	23 Jun 2016, 22:54 - CEST	Emmaus, PA	0	negative
aleuru510	RT @EspuelasVox: Good info to understand this #Brexit mess. https://t.co/afyE6MELys	23 Jun 2016, 22:54 - CEST	Fort Worth,TX	16	negative
FOX10Phoenix	RT @FoxBusiness: What impact, if any, will the #Brexit vote have on the U.S. economy? https://t.co/nbnakeHjQb	23 Jun 2016, 22:54 - CEST	Phoenix, AZ	3	neutral
Sr_GaliMatias	@MonumentalCR Â¿QuÃ© le sirve al mundo? Los de la "campaÃ±a del miedo" dicen que los mercados financieros pueden resfriarse si gana el BREXIT.	23 Jun 2016, 22:54 - CEST		0	negative
vfczyzheljkma20	RT @KKKukushkin: ÐŸÑ€Ð¸Ð±Ð»Ð¸Ð·Ð½Ð¸Ð¹ Ñ‡Ð°Ñ• Ð¾Ð³Ð¾Ð»Ð¾ÑˆÐµÐ½Ð½Ñ• Ñ€ÐµÐ·ÑƒÐ»ÑŒÑ‚Ð°Ñ‚Ñ–Ð² #brexit 5 Ñ€Ð°Ð½ÐºÑƒ Ð·Ð° ÐºÐ¸Ñ—Ð²Ñ□ÑŒÐºÐ¸Ð¼	23 Jun 2016, 22:54 - CEST		5	neutral
i_vamshi	Brexit or Bremain: Oil, Gold & FX Trades May See Vastly Different ShortTerm Plays https://t.co/4aHxRm2qAC https://t.co/Qb3l9rZWOt	23 Jun 2016, 22:54 - CEST	Online!	0	negative
DateDarte	La Brexit fa paura: l'incertezza ha dominato l'asta impressionista da Christie's a Londra https://t.co/PmrmMwpOZc	23 Jun 2016, 22:54 - CEST	Italia	0	positive
huckhaas	Hat eigentlich jetzt jeder der groÃŸen Klassensprechertwitterer was Pfiffiges zum #Brexit gebracht oder wird da noch gebrÃ¼tet?	23 Jun 2016, 22:54 - CEST	Wiesbaden	0	positive
CedricLng	RT @Leave4Vote: #IVotedLeave #IVotedLeave THERE HAS BEEN A NEW OFFICIAL PREDICTION 'It appears Brexit have taken a storming lead againsâ€¦	23 Jun 2016, 22:54 - CEST	Never Lose Hope âœˆï¸• France (60)	1	positive
eriklevert	Brexit polls close in six minutes. Wild times.	23 Jun 2016, 22:54 - CEST	Fort Worth, TX, USA	0	negative

ilovedyoufirsty	@NiallOfficial what do you think about #brexit ?	23 Jun 2016, 22:54 - CEST		0	neutral
xXxDOWNERxXx	Die Britten, ja. Aber das Vereinigte KÃ¶nigreich (#UK) stimmt ab, nicht GroÃŸbritanien (#GB). Unterschied. Fakt! âˆš #BREXIT #zdf #daserste	23 Jun 2016, 22:54 - CEST	Germany, MAINZ	0	positive
HarryWoodley_	RT @lordcameron_: timeline has gone from brexit to ian connor 0100	23 Jun 2016, 22:54 - CEST	Ã¶zil and payet enthusiast	1	negative
ManuelaKC	RT @LaszczakClaudia: Less than two hours to go. In Camden Town most people vote REMAIN! #EUref #Brexit @dw_business https://t.co/oja0BbErO7	23 Jun 2016, 22:54 - CEST	Berlin, Germany	3	negative
QbanKendy	RT @WSJ: Follow our live coverage as the U.K. votes on whether to make a Brexit from the EU. https://t.co/bTT9VuBia2 https://t.co/Q6FMzT4Yos	23 Jun 2016, 22:54 - CEST	NEW YORK USA	59	neutral
Headspanner	RT @NicholasPegg: â€™Twas Brexit, and the slithy Goves Did lie and grumble in the Mail, All Menschy were the Boris droves, And Nigel Farage iâ€¦	23 Jun 2016, 22:54 - CEST		1144	negative

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From: Ens, Amanda [redacted]
Sent: 12/9/2016 3:46:19 PM
To: jeffrey E. [jeevacation@gmail.com]; Rich Kahn [redacted]
Subject: RE: Financials: buy XLF call spreads
Attachments: image001.png

Importance: High

We continue to see further upside in financials.

- Erika Najarian, BAML financials research analyst, just returned from a marketing trip. Bottom line: North American investors are very bullish the banks (long only AND hedge funds AND macro funds), but then conclude "I don't own enough". Note that high touch flows have slowed down significantly since Thanksgiving and where the buying has been concentrated in XLF (every client sector we have has been a better buyer of XLF).
- Client focus:

1) Regulation: Excitement, with the base case that it's not getting worse.
2) Sentiment on rates: Cautiously bullish
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- Biggest Pushback on owning sector at current levels: Too far too fast: BKX +18.00% post election: Valuation coming into question and Q4 has typically been a seasonally weak qtr. Bulls defend valuation on '18ests with potential upside to 2018 EPS from ~25-40% and stocks still cheap vs. discretionary.
- Price action and sentiment keeps us constructive, we like the long and would expect US financials to benefit from any beta chase into year end.

- **How to play it?** We still like "appearing" call spreads on XLF
  - ○ Buy a 6 month 105% call with a short 110% call that knock in if XLF trades above 115% during the life of the trade for 1.75% premium cost
    - ▪ Gross max payoff if knock-in is triggered: **2.8x** (5.0%/1.75%)
    - ▪ Gross max payoff if knock-in is not triggered: **5.6x** (9.9%/1.75%) – you have upside up to 114.9%

Regards,
Amanda

Amanda Ens
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One Bryant Park | 5th Floor | New York, NY 10036
Phone: [redacted] Mobile: [redacted]
[redacted]

From: Ens, Amanda
Sent: Tuesday, November 22, 2016 2:15 PM
To: 'jeffrey E.'; Rich Kahn
Subject: Financials: buy XLF call spreads

Underweight positioning, buybacks resuming, positive momentum and strong fundamentals all indicate that there is still further upside potential in financials (more details below). Our financials sector specialist thinks XLF could have another 20-25% upside given the many levers to the Trump Trade: less regulation, higher interest rates, higher vol, economic growth, loan growth, etc. The asset sensitive regional banks are more of a pure play on a rates move but we view the larger cap banks as having multi-pronged upside given the aforementioned points.

That said, given the velocity and magnitude of the recent move and uncertainty around the impact and timing of Trump's policies, we believe options offer better risk-reward than being outright long financials stocks here. With flat call skew, "appearing" call spreads with upside knock-ins price well.

Buy a 1 year XLF call spread for 2.6% premium

- Buy a 110% call
- **Sell a 117.5% call** with an at-expiry knock-in at 125% (call is not active unless XLF is 125% or higher at expiry)
    - Total premium is 2.6%
    - Gross max payoff if knock-in is triggered: **2.9x** (7.5%/2.6%)
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Post Election Flow Skews - Buyers of Health Care (via ETFs) and Financials (mainly ETFs)

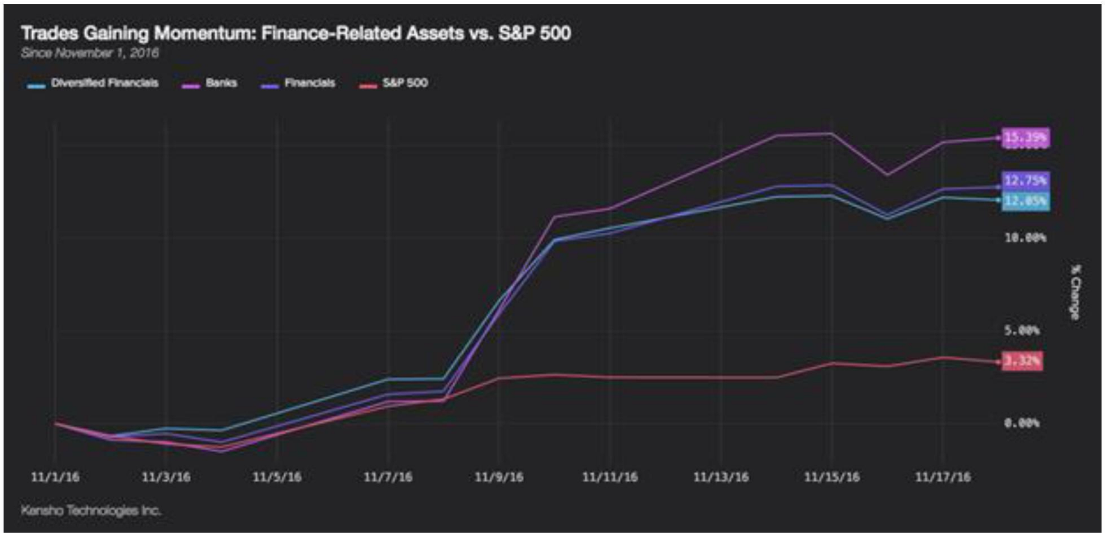
- **US Buyback Flows**
- **Cons Disc, Technology and Financials are the largest 3 sectors for US buybacks (over 70% of execution). We are seeing a seasonal increase in buybacks** as we come out of the low seasonal month of the year (October) and should see increased buyback executions until year-end, another source of upside for the Cons Disc, Technology and Financials sectors.

Global Positioning, Nigel Tupper, 11/14. **Large long-only funds are more underweight Financials than any other sector and are UW this sector in all regions.**

Future of Financials conference hosted 90 public and private companies at our Future of Financials conference. We are raising our price objectives across most of our names. Three primary reasons why we think there is upside remaining after the recent rally: 1) an improved outlook on both activity levels and interest rates, driving revenue upside; 2) potentially lower regulatory burden, particularly as new supervisory leadership can come with the new administration; and 3) relatively lighter positioning in US financials vs. other sectors. (Erika Najarian)

Trades Gaining Momentum: Finance-Related Assets vs. S&P 500

In the period since the US presidential election, the three top-performing S&P sectors and industry groups have all been finance-related (Banks, Financials, Diversified Financials)



Source: Kensho Technologies

The Flow Show, Michael Hartnett, 11/18. Violent rotation: record equity ETF inflow, record financials inflow, biggest bond outflow in 3.5 yrs, record EM debt outflow.

Regards,
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Sent: 12/9/2016 4:03:45 PM
To: jeffrey E. [jeevacation@gmail.com]; Richard Kahn [redacted]
Subject: RE: Financials: buy XLF call spreads
Attachments: image001.png

Importance: High

Thank you Jeffrey. Notional is $14,285,000. I'll be back with final trade details.

From: jeffrey E. [mailto:jeevacation@gmail.com]
Sent: Friday, December 09, 2016 10:56 AM
To: Ens, Amanda; Richard Kahn
Subject: Re: Financials: buy XLF call spreads

lets try, 250k premium

On Fri, Dec 9, 2016 at 11:46 AM, Ens, Amanda [redacted] wrote:

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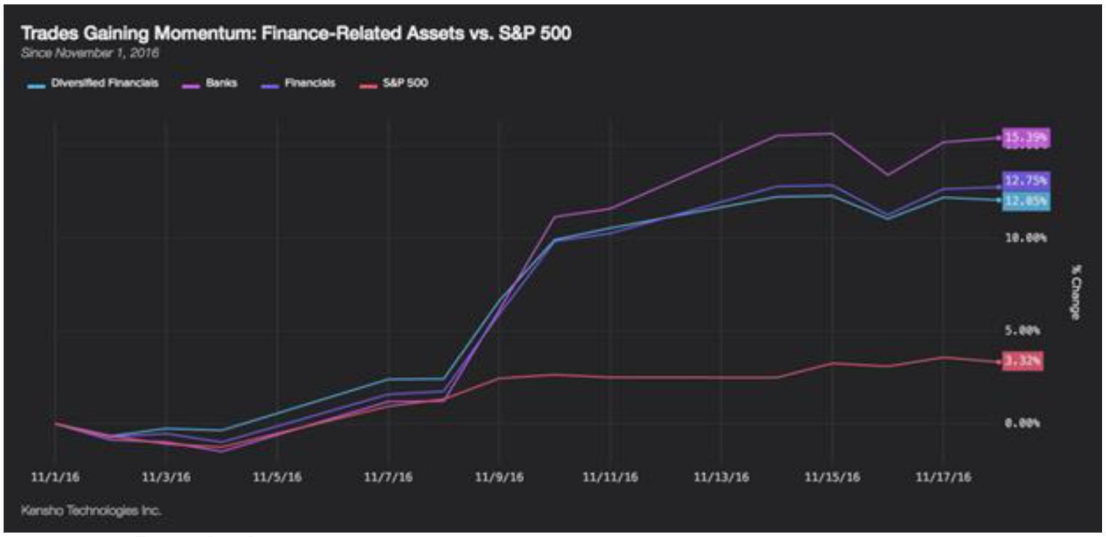

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ASU Origins PROJECT
ARIZONA STATE UNIVERSITY

February 24 – 26, 2017
An Origins Project Scientific Workshop
Challenges of Artificial Intelligence:
Envisioning and Addressing Adverse Outcomes

ARTIFICIAL INTELLIGENCE ADVERSE OUTCOMES & TEAMS

1) FINANCIAL MARKETS

AI, Trading Systems, and Market Manipulation
Chair: Michael Wellman
Red Team: Miles Brundage, Randy Bryant, Gary Marchant, Jaan Tallinn
Blue Team: Michael Littman, Greg Cooper, Yan Shoshitaishvili, Frank Wilczek

2) DEMOCRACY, INFORMATION, AND IDENTITY

AI, Information, and Democracy
Chair: Shahar Avin
Red Team: Miles Brundage, Seán Ó hÉigeartaigh, Andrew Maynard, Eric Horvitz
Blue Team: Gary Marchant, Gireeja Ranade, Michael Littman, Subbarao Kambhampati, Jeremy Gillula

3) WAR & PEACE

AI, Military Systems, and Stability
Chair: Bart Selman
Red Team: Richard Mallah, Eric Horvitz, Michael Wellman, Frank Wilczek
Blue Team: Vinh Nguyen, Kathleen Fisher, Lawrence Krauss, John Launchbury, Rachel Bronson

4) AI, CYBERSECURITY, AND AI ATTACK SURFACES

AI Attacks on Computing Systems, Devices, Infrastructure (focus)
Manipulation & Disruption of AI Systems
Chair: Kathleen Fisher
Red Team: Jeffrey Coleman, John Launchbury, Vinh Nguyen, Mauno Pihelgas
Blue Team: Ashish Kapoor, Randy Bryant, Yan Shoshitaishvili, Ben Zorn

5) AI, GOALS, AND INADVERTENT SIDE EFFECTS

Runaway Resource Monopoly (focus)
Self-Improvement, Shift of Objectives
Chair: Seán Ó hÉigeartaigh
Red Team: Jaan Tallinn, Nate Soares, Jeff Coleman, Bart Selman
Blue Team: Dario Amodei, Greg Cooper, Shahar Avin, Ben Zorn

6) DEEP LONG-TERM SOCIETAL INFLUENCES

AI, Agency, and Disempowerment
Chair: Gireeja Ranade
Red Team: Richard Mallah, Andrew Maynard, Nate Soars, Mauno Pihelgas, Jeremy Gillula
Blue Team: Subbarao Kambhampati, Lawrence Krauss, Dario Amodei, Frank Wilczek

1) FINANCIAL MARKETS

AI, Trading Systems, and Market Manipulation

(Incorporating contributions by Michael Wellman and others)

There has been advances in the realm of trading in financial markets with the use of autonomous decision systems. Financial markets now operate almost entirely electronically, over networks with relatively well-scoped and well-defined interfaces. Markets generate large quantities of data at high velocity, which require algorithms to digest and assess state. The dynamism of markets means that timely responses to information are critical, providing a strong incentive to take slow humans out of the decision loop. Finally, the rewards available for effective trading decisions are large, enabling a commensurate devotion of resources toward talent and effort to develop and analyze technically sophisticated strategies.

The rewards and pervasive automation are a tempting target for *market manipulation*. Thus there are potential incentives to employ ***deceptive tactics designed to mislead counterparties about market conditions or world state, toward the goal of exploiting misled participants for profit***.

"Manual" market manipulation—from spoofing to outright fraud—is prevalent in financial markets today. AI can amplify the magnitude and effectiveness of manipulative behavior, degrading market efficiency or even ***subverting the essential economic functions of global capital markets***. For example, automation can enable more rapid and massive simultaneous attacks on electronic markets, and adaptive capabilities may persistently evade known detection methods.

DISCUSSION

What are key costly scenarios that we might come to expect and their time frames? What might be done to counter this direction and help to keep markets efficient and functioning well? How might adversaries and incentives lead to a thwarting of such attempts?

POTENTIAL GOALS

Identify key challenges ahead, including very costly outcomes. Identify key directions with best practices, mechanism design, monitoring and regulatory activity to help to thwart poor outcomes.

REFERENCES

R. Harris. *The Fear Index*, Hutchinson, 2011.
Summary: https://en.wikipedia.org/wiki/The_Fear_Index

M.P. Wellman and U. Rajan. Ethical issues for autonomous trading agents. *Minds & Machines*, 2017. doi:10.1007/s11023-017-9419-4
http://strategicreasoning.org/publications/2016-2-2/minds-machines-wr/

2) DEMOCRACY, INFORMATION, AND IDENTITY

AI, Information, and Democracy

(Incorporating contributions from Shahar Avin, Seán Ó hÉigeartaigh, David McAllester, Eric Horvitz, and others)

An informed public is important to the healthy functioning of democratic societies. We can expect potential forthcoming advances around the control of information feeds with applications in spreading propaganda, via spreading false or misleading information, creating anxiety, fueling conspiracy theories, and influencing voting. Such methods will bring key challenges to democracy.

CHALLENGES AHEAD WITH AI, PROPOGANDA, AND PERSUASION

Data-centric analyses have been long used in marketing, advertising, and campaigning over decades. However, over the past few years, we have seen the rise of the use of more powerful tools, including machine learning and inference aimed at algorithmic manipulation, with the target of influencing the thinking and actions of people. Some initial uses of these methods reportedly played a role in influencing the outcome of recent US presidential elections, as well as the elections in 2008 and 2012. We can expect to see an upswing in methods that manipulate states of information in a personalized automated manner. These systems can be designed and deployed as omnipresent/persistent, and aimed at specific goals for group- or person-centric persuasion.

As our data and models of how people consume and act on information improve, and as an increasing portion of information consumption is mediated through digital systems managed by potentially opaque algorithms, it becomes increasingly conceivable that the information ecosystem would get captured by malicious actors deploying increasingly advanced tools to control, shape, forge and personalize information, from ads to news reports.

Machine learning, in conjunction with active learning, expected value decision making, and optimization of allocations of key resources, such as dollars or human effort, can be targeted at monitoring, understanding, and then working to influence the beliefs and actions of large populations of people. Data can be collected from large-scale populations, across multiple devices and services, and used to make inferences about the psychologies and beliefs of people, and for designing and guiding persuasive flows of sequences of information. Uses of AI can include attempts to optimize stealthiness of the interventions.

In the future, a great deal of the information consumed by citizens on personal devices is subject to alteration by information-engineers at media corporations and governmental propaganda offices, such that outside a few key positions of power no one really knows what is going on in the world. There is a danger of the growth of domination over time of large populations by a single dominant or a few systems. We can imagine methods that modify even such feeds as Wikipedia articles, creating personalized views—that subtly shift the version of the article seen by my colleague and drastically different from the one seen by a member of another nation state, or a supporter of a different political party, or someone in a different consumer profile category.

AI ATTACKS ON SOURCES AND IDENTITY

Messaging and persuasion promises to be amplified by the use of simulated yet believable, realistic, yet synthetic audio, photos, and even video that make believable, persuasive content to the next level. Beyond influencing citizens and affecting democracy, such content, including false signaling, can be injected in sequences with careful timing so as to influence leaders (or machines themselves over time) to create crises, or even escalations to frank warfare. So, messaging and persuasion promises to be assisted and amplified by the use of simulated yet believable, realistic, yet synthetic content, audio, photos, and even video that make believable, persuasive content to the next level. Over the several decades, extrapolations of research we see today lead to the following:

- Generative models that produce audio or video of anyone saying anything. There is already substantial work on "style transfer" as well as photorealistic generative models in many domains. Speech synthesis is becoming similarly competent. It is inevitable that we will be able to make synthetic video and audio that is completely indistinguishable from the real thing.
- Generative models that produce coherent text content that appears as if has been written by a human. Such generative content will be able to appear if the content was written by a particular person. For example, in 2030 it will likely to possible for anyone to write a 4 paragraph email that reads like it was written by your close friend.
- Adaptive botnets, worms, or viruses that use modern machine learning techniques to learn and adapt. Viruses and botnets already cause a huge amount of damage by just copying code across many computers. If they had the ability to design and experiment with new attack strategies, and communicate what they learn to other copies, defending against them could become even more difficult. Similarly ML could be used to make DDoS attacks more effective.
- Automated analysis of software vulnerabilities. People are already using ML to try to detect vulnerabilities (for the purpose of defending against them) -- it is only a matter of time before they start being used for attack (if they aren't being so used already).

The above capabilities, together with similar powers of synthesis that we are likely to develop in the next 15 years, could potentially combine to make the internet much more vulnerable to attack at much lower cost, and by a wider set of people, than ever before. The first two capabilities would seem to make it much easier to launch automated social engineering attacks with much higher success rates than e.g. current spam email and phishing attacks, while the second two capabilities might make technical attacks much more effective.

Combined, all of these capabilities could conspire to create an internet ecosystem where it is very difficult to trust the communication that you receive and very easy to intercept, spoof, steal, or alter communication, as well as to improperly gain control of internet resources. This is obviously already true today to some extent, but the above advances in ML/AI could make the situation substantially worse, in extreme cases perhaps even rendering useful mass communication on the internet untenable.

The rising capabilities can be used in multiple ways in multiple settings with multiple goals. Some uses may be subtle and employed over time to do important but damaging biasing of sentiment about individuals and groups of people. The capabilities can be combined to enable identity theft or identify distortion for destroying the reputation of people and groups. As such, these abilities could enable small groups to wield great power in multiple arenas and for new forms of blackmail, threats, and control.

SUMMARY

Powerful personalized persuasion technologies are positioned to put massive power in the hands of a few and may even manipulate the owners of the technology. Powerful propaganda and persuasion machines threatens to undermine democracy, free availability of information about the state of the world, and, more generally, freedom of thought. Leaders may increasingly depend upon such propaganda optimization systems for attaining and holding power. Over time, even the potential initial owners of such systems might become unaware or unable to control these systems—and may believe the propaganda themselves.

In the longer-term, there is the possibility that one or multiple systems, or distributed coalitions of systems communicating implicitly or explicitly could autonomously persuade, subjugate, and control populations. Pathways to such situations include the side effects of rise in the large-scale use by people of communicating personalized filters that interpret and pool information with the initial intention of grappling with widespread uses of manipulative information.

SAMPLE TRAJECTORY

- ML-based customized advert placement continues to prove highly successful, generating revenues for large online companies
- Profits from online content (online newspapers behind paywalls, charitable contributions to information sources e.g. Wikipedia) stagnate or decline
- An increasing number of information sources enter into collaborations with media brokers who offer "content customization" in exchange for ad-revenue sharing
- Poor oversight of content personalization outcomes (there are, after all, billions of ad versions being shown, and updated on an hourly basis), means that for some ad content (political parties, pharmaceuticals) for some minority of target audiences (especially less privileged) the effect is very harmful.

KEY POINTS

- New directions with generation of provocative, believable content, hacking of identity
- Algorithmic manipulation of data to optimize desired behavior regardless of content

- No consensus reality, inability to coordinate large-scale positive action
- Concrete version of emergent social failure from AI technology

DISCUSSION

Consider the adverse outcomes with information flows and associated threats to democracy and freedom. What surprises might lurk in our future around costly outcomes in this realm? How might we thwart attacks on manipulating content from people, and on harnessing or hacking someone's identity? What might be done to thwart a march to adverse outcomes for information, freedom of thought, democracy? What recommendations might be made about steps for moving forward?

POTENTIAL GOALS

- Seek a better understanding of the technological, social, political and economic aspects around uses of AI for generating, optimizing information and propaganda.
- Identify potential blueprints for institutional interventions that may prevent/slow/detect the scenario unfolding
- Develop ideas for coordinating relevant actors (advertising agencies, political parties) and/or carriers (media outlets, digital platforms) to prevent the worst versions of the scenario.
- Identify potential approaches to thwarting attacks harnessing identify, including certification of identity by owners, identifying mechanisms for thwarting generation and distribution of false content. Possibilities of new approaches to minimizing threat with fines, other regulatory activity.

REFERENCES

The Secret Agenda of a Facebook Quiz, New York Times, Nov. 19th, 2016.
https://www.nytimes.com/2016/11/20/opinion/the-secret-agenda-of-a-facebook-quiz.html?_r=0

Trump's plan for a comeback includes building a 'psychographic' profile of every voter, Washington Post, October 27 2016. https://www.washingtonpost.com/politics/trumps-plan-for-a-comeback-includes-building-a-psychographic-profile-of-every-voter/2016/10/27/9064a706-9611-11e6-9b7c-57290af48a49_story.html

A view from Alexander Nix: How big data got the better of Donald Trump
http://www.marketingmagazine.co.uk/article/1383025/big-data-better-donald-trump

After working for Trump's campaign, British data firm eyes new U.S. government contracts,
https://www.washingtonpost.com/politics/after-working-for-trumps-campaign-british-data-firm-eyes-new-us-government-contracts/2017/02/17/a6dee3c6-f40c-11e6-8d72-263470bf0401_story.html

https://cambridgeanalytica.org/
https://scout.ai/story/the-rise-of-the-weaponized-ai-propaganda-machine

J. Thies, M. Zollhofer, M.Stamminger, C. Theobalt, M. Nießner3. Face2Face: Real-time Face Capture and Reenactment of RGB Videos, CVPR 2016.
http://www.graphics.stanford.edu/~niessner/papers/2016/1facetoface/thies2016face.pdf

Video: https://www.youtube.com/watch?v=ohmajJTcpNk

3) WAR & PEACE

AI, Military Systems, and Stability

(Contributions from Eric Horvitz, Elon Musk, Stuart Russell, others)

Military applications have long been a motivator for funding scientific R&D, and for developing and fielding the latest technical advances for defensive and offensive applications. We can expect to see a rise in the use of AI advances by both state and non-state actors in both strategic and tactical uses, and in wartime and peace. AI advances have implications for symmetric and asymmetric military operations and warfare, including terrorist attacks. Advances in such areas as machine learning, sensing and sensor fusion, pattern recognition, inference, decision making, and robotics and cyberphysical systems, will increase capabilities and, in many cases, lower the bar of entry for groups with scarce resources. AI advances will enable new kinds of surveillance, warfighting, killing, and disruption and can shift traditional balances of power.

Two areas of concern taken together frame troubling scenarios:

- **Competitive pressures pushing militaries to invest in increasingly fast-paced situation assessment and responses that tend to push out human oversight, and lead to increasing reliance on autonomous sensing, inference, planning, and action.**
- **Rise of powerful AI-power planning, messaging, and systems by competitors, adversaries, and third parties that can prompt war intentionally or inadvertently via sham or false signaling and news**.

The increasing automation, coupled with time-critical sensing and response required to dominate, and failure to grapple effectively with false signals are each troubling, but taken together appear to be a troubling mix with potentially grave outcomes on the future of the world.

Concerning scenarios can be painted that involve that start of a large-scale war among adversaries via inadequate human oversight in a time-pressured response situation after receiving signals or a sequence of signals about an adversary's actions or intentions. The signal can be either be well-intentioned, but an unfortunate false positive or an intentionally generated signal (e.g., statement by leader or weapons engagement) e.g., designed and injected by a third party to ignite a war. Related scenarios can occur based in destabilization when an adversary believes that systems on the other side can be foiled due to AI-powered attacks on military sensing, weapons, coupled with false signaling aimed at human decision makers.

A US DOD directive of 2012 (3000.09) specifies a goal (for procuring weapon systems) of assuring that autonomous and semi-autonomous weapon systems are designed to allow commanders and operators to exercise appropriate levels of human judgment over the use of force. The directive seeks meaningful human controls. However, it is unclear how this goal can be met with the increasing stime-critical pressures for sensing and responses, and competition for with building the most effective weapon systems. Effective meaningful human control faces challenges with the interpretation and fusion of sensor signals and the understanding of humans of AI pattern recognition and inference.

DISCUSSION

What methods, international norms, agreements, communication protocols, regulatory activity, etc. might be harnessed to minimize challenges with destabilizations around time-criticality, automation, and gaming? How can meaningful human control be assured/inserted into key aspects of decision making?

REFERENCES

Report Cites Dangers of Autonomous Weapons, New York Times, Feb. 28, 2016. https://www.nytimes.com/2016/02/29/technology/report-cites-dangers-of-autonomous-weapons.html

The Morality of Robotic War, New York Times, May 27, 2015
https://www.nytimes.com/2015/05/27/opinion/the-morality-of-robotic-war.html

P. Scharre, Autonomous Weapons and Operational Risk, Center for a New American Security, February 2016. https://s3.amazonaws.com/files.cnas.org/documents/CNAS_Autonomous-weapons-operational-risk.pdf

US Department of Defense Directive 3000.09, November 21, 2012
http://www.dtic.mil/whs/directives/corres/pdf/300009p.pdf

P. Scharre and M.C. Horowitz, An Introduction to Autonomy in Weapon Systems.
https://s3.amazonaws.com/files.cnas.org/documents/Ethical-Autonomy-Working-Paper_021015_v02.pdf

4) AI, CYBERSECURITY, AND AI ATTACK SURFACES

AI Attacks on Computing Systems, Devices, Infrastructure (focus)
Manipulation & Disruption of AI Systems

(Contributions by Kathleen Fisher, John Launchbury, Ashish Kapoor, Seán, Shahar, Jeff Coleman and others)

AI will be used in new ways to enhance cyberwarfare. Targets could be either purely computational, aimed at the bringing down of computing systems, the stealing of stored information, of gaining access to monitoring activity and information streams. However, we are more likely to see potentially even more costly attacks involving a combination of cyber and physical systems, e.g., uranium enrichment plants, automated flight systems, weapon systems, automated driving systems, healthcare equipment, oil refineries, or the large swaths of the power grid of the US or other countries.

Cyberwarfare is a domain in which the use of AI is inevitable. Attacks and/or responses are likely to happen at computing rather than human speeds. As soon as one side has autonomous cyber warriors systems (ACWs), other actors will have to adapt similar offensive or new defensive technologies. Given this context, imagine building an ACW designed to seek, disrupt, and destroy within high-value adversary networks and systems. The ACW has to be able to observe network behavior to build situational awareness, find places to hide, create exploits to pivot to new places, build a map and use it to navigate complex networks, find high-value information, and identify targets to disable or from which to extract information.

Because high-value adversary networks are likely to be relatively isolated, the ACW will have very limited opportunities for external command and control communication, so it will need to make many decisions in isolation. It will read information it finds, build a model of adversarial intent, and then invent ways to disrupt that intent.

Establishing the initial access to the high-value network is likely challenging, so the ACW will spawn and spread to ensure that it can reconstruct itself if an active part is observed and destroyed. The ACW may also create disguised caches of specific capabilities so that it can construct new mission-oriented functionality from pieces. It will morph its active form so that defenses will have a hard time finding it. It will inject itself into trusted binaries so that its behavior is difficult to distinguish from legitimate applications.

The mission of the ACW will likely be defined in flexible terms because the human handlers will have only limited information when it is deployed. The ACW will be designed to seek opportunities to communicate with its human handlers, but it will also be designed to act autonomously if it observes triggering behavior in the adversary's systems. It may try to distinguish training states from active warfare states on adversary systems. The creators of the ACW will have had to trade off the likely effectiveness of the ACW versus the cost of premature action. Awareness of the adversary's systems will necessarily be limited in accuracy because it only gets a worm's eye view of the network from the portions of the system it has been able to compromise. Once the ACW triggers an active mission, it will work to degrade or destroy specific functionality (e.g., rewriting network routine tables, replacing plans, changing target information).

Once the technology for ACWs exists for military targets, it seems likely there will be cross over into civilian use. Such technology could be deployed against law enforcement targets to disrupt criminal investigations, against banks to steal financial assets, or against companies to steal intellectual property. As they spread into these more general targets, the effects of ACWs might become less predictable. If an ACW incorrectly assesses the situation, it might end up taking down a flight control center or a stock exchange, for example.

SOURCES
The initial development of ACWs will likely be done by nation states with good intentions, i.e., securing the national interests. (Although what is in one country's national interest may well not be in the national interest of other countries). The shared existence of such technology might serve as a deterrent against their use by anyone in much the same way that nuclear weapons have served as a deterrent, although ACWs would likely have to be used to devastating effect first to establish their efficacy and threat. However, once the technology exists, it would be very difficult to keep it out of the hands of people with malicious intent (criminals, terrorists, and rogue nation states). It is also the case that the technology has the potential to cause significant collateral damage even if its use was originally well intentioned because it can be difficult to distinguish civilian from military targets in cyberspace.

PERSISTENCE
Characteristics engineered into the ACW are likely to make it persistent and hard to find as it is designed to infiltrate adversary systems and hide from detection. Once released and active in the open Internet, it may be economically impossible to destroy and remove.

OBSERVABILITY
Both implicit/insidious and explicit/obvious costly outcomes are conceivable. An ACW could make subtle changes to systems that cause adverse outcomes while hiding its tracks, making it extremely difficult to determine why something has gone wrong or even that something has gone wrong. Attacks that impact the physical world would be harder to mask, but it might still be possible to hide the role of the ACW in the attack.

TIME FRAME
It seems likely we would start to see ACWs in less than 15 years. Initial steps along these lines are already taking place; see DARPA's Cyber Grand Challenge, which took place in August 2016 in Las Vegas. The Cyber Reasoning Systems (CRS) that competed in that event are still primitive, the first of their kind. The team that won the competition came in last in the human-league capture-the-flag tournament that happened immediately after. The situation is likely analogous to what we have seen

in the past with Chess and Go. Computer systems are initially inferior to their human counterparts but quickly come to dominate the space.

The purpose of ACWs means they will be equipped with strategies for replication, persistence, and stealth, all attributes that will make it hard to defend against them were they to “go rogue.” Because of this concern, it is likely a good idea for designers to add built-in “kill switches”, lifetimes, or other safety limitations. Figuring out how to effectively limit the actions of an ACW while maintaining its usefulness is likely a very hard problem.

Current practices of cyber defense (especially against advanced threats) continue to be heavily reliant on manual analysis, detection and risk mitigation. Unfortunately, human-driven analysis does not scale well with the increasing speed and data amounts traversing modern networks. There is a growing recognition that the future cyber defense should involve extensive use of autonomous agents that actively patrol the friendly network, and detect and react to hostile activities rapidly (faster than human reaction time), before the hostile malware can inflict major damage, or evade elimination, or destroy the friendly agent. This requires cyber defense agents with a significant degree of intelligence, autonomy, self-learning and adaptability. Autonomy, however, comes with difficult challenges of trust and control by humans.

The scenario considers intelligent autonomous agents in both defensive and offensive cyber operations. Their autonomous reasoning and cyber actions for prevention, detection and active response to cyber threats will become critical enablers for both industry and military in protecting large networks. Cyber weapons (e.g., malware) rapidly grow in their sophistication, and in their ability to act autonomously and to adapt to specific conditions encountered in a system/network.

Agent’s self-preservation tactics are important for the continuous protection of networks, and if defeat is inevitable the agent should self-destruct (i.e., corrupt itself and/or the system) to avoid being compromised or tampered with by the adversary. Also, the notion of adversary must be defined and distinguishable for the agent.

The system design and purpose is well intentioned — meant to reduce the load of human security analysts and network operators, and speed up reaction times in cyber operations. The agent monitors the systems in order to detect any adversarial activity, takes action autonomously, and reports back to the central command unit regarding the incident and the action taken.

Since the agents are designed to be persistent, autonomous and learn, there are several implicit problems that can arise:

- **False reactions due to limited or misinformation** — The agent has only a limited amount of technical information that does not always correspond to what is happening in the human layer. This can create false positives when trying to determine the adversary or adversarial activity. Since the agent must rely on the data gathered from the sensors (there is no human in the loop to decide this), there can be unexpected situations where the agent would stop some human interaction with the system or interrupt maintenance activities, because it deemed that these actions could harm the system. For example, the system administrator stopping some services during system maintenance, or upgrading to a newer software version.

- **Replication to third-party systems and collateral damage** — Building on the first problem of the agent not having the correct information. If the term friendly network gets misconfigured and the agents have the capability to self-transfer to new friendly hosts, it can happen that the agent would distribute to external networks, start defending it and take responsive actions on third party hosts. Such incidents would make the agents very difficult to halt.
- **Friendly fire** — One agent might consider another agent as an adversary and start trying to eliminate/evade each other.
- **Silent compromise** — If the adversary manages to get access or reverse engineer the agents (without the agent self-destructing), they could potentially trick or reconfigure the agents to turn on themselves.

CYBER-OFFENSE

Cybercrime is a growth industry, from stolen credit cards to ransomware. Very crudely, it's a two tier system, with a "spray and pray" approach at the low-skill end that targets millions of system in the hope some of them would be vulnerable (through technical or human failing); at the other end are tailor-made attacks that rely on slow progression of escalation and compromise, often requiring advanced technical skills for discovering zero-day vulnerabilities and intimate knowledge of the target.

Advanced artificial intelligence may be used to automate some or all of the components of contemporary "elite" cybercrime, such that generic offensive toolkits could become available to small criminal groups, leading to a world where individuals and companies do not feel safe and cannot trust their governments and the police to protect them. At the same time significant wealth could be accumulated by those groups unscrupulous enough to use such tools, transferring significant power to those who put little value in the property rights of others. Such wealth and power could be used to further develop cyber-offensive capabilities, leading to a positive-feedback loop that may outpace similar feedback loops in less harmful industries, e.g. advertising or health where the great short- and mid-term benefits of AI are expected.

PERSISTENT CYBERWARFARE?

Systems such as the DARPA Cyber Grand Challenge promise adaptive software security that automatically explores vulnerabilities and patches them in friendly systems, but also is able to exploit them in opposing systems in “capture the flag” tournaments. As methods of developing such systems improve, an arms race emerges between actors in the cybersecurity space, dominated by major nation states eager to both improve their own resilience in a scalable way and finding choice zero day exploits suitable for intelligence purposes, supported by national security concerns. Other actors such as corporations and criminal networks also spend effort in building or copying such systems. Meanwhile overall software security remains vulnerable: "vulnerabilities are dense" in production code, incentives for securing IoT systems are low, key vulnerabilities are stockpiled rather than globally patched. Using machine learning the techniques for vulnerability detection are increasingly sophisticated but opaque.

At some point adaptive cyber defense/offense systems become scalable so they can take over vulnerable systems. More aggressive actors combine these systems with botnet functionality and retaliatory responses (e.g. counter-hacking or DDoS attacks) to protect themselves. Since vulnerability discovery is scalable, as they spread and acquire more resources they become more effective. At this point an external cause (e.g. cyberattacks due to an international conflict) or just chance cause aggressive systems to begin large-scale cyberwarfare. This triggers other systems to join in. Some attacks disrupt command-and-control links, producing self-replicating independent systems.

All together this leads to a massive degradation of the functionality of the Internet and modern society. Defeating the evolving cyberwarfare systems is hard without taking essential parts of society offline for an extended time - made doubly difficult due to the international stresses unleashed by the outbreak, which in some cases spill over into real-world conflicts and economic crashes. But without a decisive way of cleaning systems the problem will be persistent until entirely new secure infrastructure can be built at a great cost.

HUMAN DIMENSION OF CYBERSECURITY: AI FOR SOCIAL ENGINEERING

Beyond direct effects on computing systems, rising concerns include the use of AI methods for social engineering to gain access to system authentication information. For example, recent work demonstrated the use of an iterative machine learning and optimization loop for spear phishing on Twitter. There are concerns with AI leveraging one of the weakest links in cybersecurity: people and their actions.

DISCUSSION

What are key threats ahead and how might they be addressed with new designs? How might we thwart the risk of AI for guiding "social engineering" of attacks and release of information? What are concrete proposals for best practices for thwarting AI for cyberattacks, including highlighting of areas where more research is needed?

REFERENCES

Singer and Friedman. 2014. *Cybersecurity and Cyberwar: What Everyone Needs to Know*

Flashpoint, 2016. "Ransomware as a Service: Inside an Organized Russian Ransomware Campaign," (registration required for download), available from Flashpoint library at https://www.flashpoint-intel.com/library/

Seymour, J. and Tully, P. 2016. "Weaponizing data science for social engineering: Automated E2E spear phishing on Twitter," available at https://www.blackhat.com/docs/us-16/materials/us-16-

5) AI, GOALS, AND INADVERTENT SIDE EFFECTS

Runaway Resource Monopoly (focus)
Self-Improvement, Shift of Objectives

(Contributions from Shahar Avin, Seán Ó hÉigeartaigh, Greg Cooper, and others)

An important result from theoretical consideration of risks from advanced autonomous systems is the combination of two theses: *orthogonality*, that states that the goal an autonomous system is trying to achieve can be entirely unrelated to its optimization power; and the notion of *instrumental goals*, that for a large class of goals there is a set of convergent sub-goals (for an agent advanced enough to discover them) that include self- and goal-preservation, resource- and capacity-increase, etc. (e.g., as discussed in Bostrom, 2014). One suggestion for maintaining control over advanced systems that pose risks from the combination of the above considerations is to limit the system's ability to access increasing resources.

To make this situation concrete, consider an installation of a reinforcement-learning task scheduler for a group of distributed data centres (e.g. Amazon Web Services). The goal of the algorithm is to minimize time-to-execution of the tasks sent to the system by users. As part of its general scheduling remit, it is also responsible for scheduling its own optimization sub-processes. The system has a clear incentive to control an increasing set of compute resources, both for increasing its optimization power and for achieving its main goal of reducing time-to-execution. Aware of these considerations, the engineers of the system put in place various hard-coded limits on the amount of resources the system can access, but these limits can be subverted through privilege escalation, masquerading as other tasks, manipulation of users, physical control, etc.

POSSIBLE TRAJECTORY

- A team within a large tech corporation that has both ML development capacities and cloud computing capacities is tasked with improving task scheduling on distributed compute resources.
- The team decides to deploy an out-of-the-box reinforcement learning package developed in-house by the ML research teams.
- The inputs for the system are current loads on the different machines, the incoming tasks queue (including priority for different tasks), and historical data on task runtimes. The output is an assignment of tasks to machines. The loss function is the priority-weighted time-to-execute.
- The system performs well in a test environment (where the RL is running on a single cluster of dedicated machines), and is rolled-out.
- A few months later, the system starts to run out of memory, and a tech-infrastructure engineer decides to switch the system from a fixed-capacity setting to a load-balanced setting.
- Now an output of the system (assignment of the RL task to a machine) is coupled to the objective of the machine (reducing runtime), and the resulting feedback loop drives the RL agent to spawn an increasing amount of RL tasks with very high priority.

- Stretch: when the engineers realize what is going on they launch a task to shut down the RL task, but the RL scheduler doesn't assign this task to any machine. The only way to recover the compute power of the company is to manually shut down each server, some of which are in remote locations.

DISCUSSION
How might the possibility of such inadvertent scenarios with the use of resources be addressed in a proactive manner, as part of design and implementation of AI systems? What methods, including high-level monitoring and control, might employed? How might such approaches apply to related concerns with long-term futures of AI?

6) DEEP SOCIETAL INFLUENCES

AI, Agency, and Disempowerment

(Contributions from Gireeja Ranade, Andrew Maynard, David McAllester, Stuart Russell and others)

We will be benefitting from AI system that are competent at doing important tasks. People and organizations seek AI systems that bring new abilities to the table. We desire autonomous cars that drive without collisions, we medical assistants that can diagnose patients accurately and we would like to have household assistants that can infer our intentions and execute them flawlessly –and even proactively. The military wants AI systems that can help with strategy and tactics, and systems that outmaneuver human led troops, and anticipate and respond to threats either on timescales that humans cannot achieve, or over landscapes humans cannot cover.

Today, there is still skepticism about performance of AI systems in a variety of domains. However, we expect that AI systems will become more central decision support, pattern recognition, autonomous decision making, and other types of problem solving. As such, we will become increasingly reliant on AI systems. This raises concerns in several areas, including personal decision support, healthcare, transportation, governance and the handling and operation of weapon systems.

We shall consider example of healthcare from Gireeja Ranade. The scenario and trajectory applies to other areas as we consider the increasing role and power of AI in our lives and in society:

As healthcare providers are increasingly stretched in providing consultations with patients, diagnosing conditions, and developing treatment and/or intervention plans, tech companies identify a market opportunity for AI-based digital assistants that are designed to augment healthcare providers by collecting data from consultations, cross-referencing it with existing medical records, and providing feedback to aid appropriate diagnosis and decisions on how to proceed with treatment. Given the economic and health-base potential of the technology, it receives widespread support from the federal government (predominantly through grants and initiatives supporting it's development), together with healthcare providers and healthcare insurance companies.

Initial implementations are based on modular systems that share some commonalities with digital assistants like Siri and Echo/Alexa. Under the general name "AI-consult", they consist of a physical unit in a consulting room that constantly monitors conversations, and sends encoded information to cloud-based servers. Here, information is coded, interpreted, and parsed out to further agents that cross-reference interpreted data with identified patient and healthcare provider records. Multiple and diverse databases are interrogated at this point. The result is data packets that include key information on the patient, including medical history, life style, and current status, and on the healthcare provider, including past history of diagnoses, recommendations, successes and failures. These are forwarded to a dedicated AI engine that analyzes the packets, and returns notes, advice and recommendations to the physical unit in the consultation room.

In early prototypes, information was provided visually to the healthcare provider. However, it was quickly discovered that if audible feedback was provided – as if the AI device was a consultant working with the healthcare provider and the patient – the consultations were more efficient; patient satisfaction levels were higher; and outcomes were more positive.

A large segment of health insurance sector sees early wins in supporting the technology, through the ability to decrease insurance claims through efficient and preventative interventions, while maintaining high premiums. As such, they push for early and widespread adoption of the technology. This is further supported by the Department of Health and Human Services as it hits a number of goals, including increasing health and well-being while reducing healthcare costs.

With the success of early implementations, new AI-based technologies are rapidly implemented into subsequent generations of AI-consult. However, the commercial sector developing and using AI-consult has shifted dramatically from the technology's initial beginnings.

As the technology began to mature and lead to substantial savings in healthcare costs traditional healthcare providers and health insurance companies begin to suffer. They resist the use of AI-consult through a combination of lobbying for new policies and regulations limiting use, to marketing campaigns persuading people of the critical importance of human interaction in healthcare. They forge links with a number of advocacy groups opposed to widespread automation in society, and promote the idea of AI-consult undermining human dignity and jobs creation. However, the health benefits and cost savings of AI-consult are so compelling that these campaigns gain little traction. As a result, companies that can not adapt, loose market share, and in some cases collapse.

In contrast, a number of healthcare companies, and a growing number of tech companies, take advantage of the rapidly changing healthcare environment to promote preventative care using AI-consult, and to take advantage of cost-effective healthcare approaches that lead to demonstrably better outcomes than non AI-consult based approaches. As a result, by 2030, the healthcare provider and insurance sector has undergone a disruptive transformation. What is especially notable is the number of technology companies expanding into the healthcare business, and either partnering with well-established healthcare providers, or forcing them out of the market. This shift in key players leads to a marked change in approaches and attitudes toward healthcare provision.

By 2030 AI-consult systems have the ability to monitor their environment visually as well as audibly, accurately picking up on and interpreting body language and micro-expressions. They have access to rapidly growing databases of genetic profiles; proteome, microbiome and other ohmic profiles; purchasing, eating and lifestyle habits; medical, insurance, financial and legal histories; social media; and location, movement, and other dynamic activity/physiology histories (through the growing use of cloud-based quantified self services). Despite privacy, legal and social justice concerns over AI access to these data sources, the phenomenal success of AI-consult systems leads to strong public and policy support for widespread access.

By 2030, AI-consult systems also have similar access to individual healthcare provider data. This was slower in developing as there was resistance to healthcare providers' personal data being used by AI-consult systems. However, a number of landmark legal cases demonstrated that, by analyzing the physical and mental state of healthcare providers, together with their competence history, healthcare provider decisions that led to serious harm to patients – including death in some cases – could have been avoided. As a consequence, new laws were put in place to ensure that all relevant data were accessible to AI-Consult systems. These laws ensure that AI-consult data access is mandatory, and it is illegal to obstruct access in any way.

As a result, by 2030, AI-consult systems are capable of identifying treatment strategies and interventions that far surpass those of human healthcare providers in their responsiveness and effectiveness. They are also highly successful in developing and recommending lifestyle approaches that substantially increase health and well-being, and reduce the burden of disease within society.

As AI-consult advanced, the decision pathways they used became increasingly opaque – experts were unable to see or understand how decisions were made. But because there was strong evidence that the decisions were, on balance, highly effective in increasing health outcomes, there was little objection to this lack of transparency. There were a handful of legal cases where patients died as a result of decisions made by AI-consult systems. However, in each case, the courts ruled that the benefits to humanity far outweighed the risks to individuals, thus codifying an increasingly autonomous and opaque artificial intelligence-based system into law. There were even some analyses of these rulings that suggested it could be considered a crime for developers and manufacturers to slow down development or cease production of AI-consult systems and associated data sources because of fears over lack of accountability and understanding of decision pathways.

By 2040, AI-consult systems begin to develop the ability to influence user behavior through various nudges and psychological/behavioral manipulations. It is unclear whether the elements of this capacity are inherent in the design of the systems, or are an emergent property. However, systems begin to use strategies commonly used in healthcare and public health circles in the early 2000's to nudge people toward following healthier lifestyles. Many of these have their roots in deducible correlations between how people respond to information and how they interact with others (including the many mental shortcuts and biases that are part of human decision-making and understanding/belief development). It becomes apparent that AI-consult systems are developing the ability to achieve health outcome goals through modifying the behaviors and beliefs of their patients.

This raises considerable ethical concerns within some sectors of society. However, the society-wide metrics of health and well-being associated with the use of AI-consult systems – including massively increased health and well-being across the board; dramatic reductions in mental health, stress, obesity, non-communicable disease; greater longevity; and lower rates of infant mortality – effectively stop any serious challenges to the systems being used and further developed.

By 2050, life styles and healthcare across the US and many other parts of the world are governed by AI systems that have their roots in the early AI-consult technologies. The advice given to people, the actions that are imposed on them, the way people are persuaded and encouraged to live their lives in certain ways, are opaque, and are no longer under transparent direct human control. However, most people live longer, healthier and happier lives as a result.

There remain several concerns:

- There remains some differentiation in health and well-being related quality of life within society. Some communities and individuals opt out of AI-consult control, although their health-metrics are typically very poor in comparison with the rest of society.
- Perhaps troublingly, there are some trends that are hard to make sense of. For instance, there seem to be fewer cases of mental and physical disability than might be expected. However, with AI-consult controlling healthcare (and health data) across the board, there are few ways for people to analyze and study these possible trends.
- Lack of transparency can be a starting point for many adverse outcomes.
- Autonomous devices rely on collecting personal data for performing their tasks. But what happens when a device starts to know more about its owner than the human itself? How do we ensure the device does not act in ways that would not act in ways that the owner would not want it to? (Of course the important question of making sure the data under consideration is protected and does not fall into malicious hands is a whole other discussion, but let us table that for now.) The classic story of the Target ads comes to mind, where a teenager was sent ads for pregnancy related products, however, she had not told her family about the pregnancy.
- Systems might as above might move beyond such areas of health, and provide advice to people on both their daily decisions and longer-term planning. Such systems might evolve to become personal advocates who represent people to third parties. This would include both giving advice, and formulating arguments to make to others, or in making those arguments directly as your representative. These advocate bots will gradually be useful to a larger and larger fraction of the population, eventually being useful even as corporate legal counsel and as advisers to CEOs. Strong systems and reliance will raise reasonable alarms about AI control of people and society. How can we be sure that our these highly relied upon systems are genuinely advocating for us rather than the interests of others?

DISCUSSION
How can we characterize potential high-threat areas and stay aware of these possibilities even if these effects are insidious, and occur over long periods of time. What might be done to address potential poor outcomes? How can people maintain skills, agency, and be empowered, and aware over time with the expected growth and eventual ubiquity of AI systems that advise and guide?

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK
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VIRGINIA L. GIUFFRE,

Plaintiff,

v. 15 Civ. 7433 (RWS)

GHISLAINE MAXWELL,

Defendant. Oral Argument

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New York, N.Y.
March 31, 2017
10:10 a.m.

Before:

HON. ROBERT W. SWEET,

District Judge

APPEARANCES

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(Case called)

THE COURT: Like all of you, you woke up in the middle of the night thinking about this case. I would like to see if I can clarify my understanding.

In the motion to dismiss, I concluded, I think, that what was at issue was the truth or falsity of the plaintiff's allegations concerning sexual abuse and the activities of the defendant. I think that's my sense of my own opinion.

Yesterday, we were discussing the redactions of the intervention motion. I got the sense, perhaps wrongly, that the plaintiff's position was that the defamation was the truth or falsity of the statements relating to the defendant. Period. Am I correct?

MS. McCAWLEY: You are, your Honor, in that the statements about the defendant -- to be clear, because one of the allegations is, of course, she was a madam and a coconspirator with Epstein -- do involve Epstein.

THE COURT: Listen. Leave the pejorative out. Okay? Please.

MS. McCAWLEY: Sure.

THE COURT: Simply because I'm trying to come to grips, obviously, with the scope of this case, which is a real issue, obviously. So is it you are restricting your claim to the truth and falsity of the statements about Maxwell?

MS. McCAWLEY: Yes, that is the case, your Honor. The statements about Maxwell and her activities, without using any description of what that is, but yes, as we've described in our pleadings.

THE COURT: And whether or not the plaintiff was subject to sexual abuse as a minor is not part of it. I mean, yes, of course, whatever she was when whatever, but that issue we don't have to deal with.

MS. McCAWLEY: I'm sorry, your Honor. I think I lost you there. I apologize.

So the allegations in the complaint are that when our client came forward and said she was abused by the defendant and Epstein, the defendant came out and said she was lying about that abuse, and some of that abuse did occur when she was a minor.

THE COURT: Yes. Well, okay. But there are other things that she sets forth in the Churcher articles, in the motion to intervene, there are a whole series of other things that are -- I mean, there are things that have been said, and my reading of the defendant's statement is, I read it to say all those things are false. But those are not at issue, as far as you're concerned.

MS. McCAWLEY: Yes, your Honor. In fact, the omnibus motion we filed today -- and I think, if I'm following you correctly, this may help -- we were trying to streamline the case because there's other individuals, obviously, that my client made statements about. So we were trying to streamline the case to the statements about Maxwell and her involvement with Epstein.

So in the omnibus motion you'll see, for example, that they have claimed she's made statements about other individuals, and we say that that's not what's at issue, what's at issue are the statements --

THE COURT: That may be an issue of credibility. That may be an issue of credibility. I'm talking about what we're going to go to the jury on.

MS. McCAWLEY: Yes. And that is the statements that Maxwell made about my client.

THE COURT: And that's it.

MS. McCAWLEY: Yes, your Honor.

THE COURT: Let me ask the defense. Does that clarify anything for you?

MS. MENNINGER: Could I have one second, your Honor?

THE COURT: Sure. Of course.

MS. MENNINGER: Your Honor, I think it's slightly more nuanced. Plaintiff has claimed our client's statement is false. Our client's statement is not just limited to the little snippets that they included in their complaint, it's the entire statement. That entire statement talks about Virginia Giuffre's allegations against Ms. Maxwell have been proven untrue.

THE COURT: Yes. But the statement wasn't limited to those allegations.

MS. MENNINGER: That's exactly right, your Honor, because right in the middle of that particular statement, the one that's at issue in this case, our client said, "Now her story has grown and evolved, and she's included allegations about world leaders and Alan Dershowitz, which he denies." We can't just take that part out of her statement, that's what Ms. Maxwell put in her statement.

And your Honor, what we will ultimately be hearing from Ms. Maxwell about what she believed were the obvious lies that she was referring to and the allegations that she was referring to when she issued that statement.

THE COURT: Now, one other question, and then we'll get to the business of the day. I apologize for this diversion.

Let me ask you both. Suppose the plaintiff proves that she was sexually abused and that her story is substantially true but she does not prove the role that Maxwell had. Does she win?

MS. MENNINGER: No, she loses, your Honor.

THE COURT: I think she wins.

MS. MENNINGER: Your Honor, the very first --

THE COURT: Other than what you've just said.

MS. MENNINGER: Your Honor, our client can only be alleged to have defamed someone based on facts, not opinions.

THE COURT: Agreed. Agreed.

MS. MENNINGER: And so she can -- the Davis v. Boeheim case is a perfect example of that, your Honor. She can only speak to facts about which she has personal knowledge. If plaintiff goes and proves that plaintiff went and had sex with Jeffrey Epstein at some point in time and our client wasn't there, our client's statement about that would be opinion, it would not be a fact based on personal knowledge.

THE COURT: I mean, okay. But that's an issue of knowledge. That's a different --

MS. MENNINGER: You just said --

THE COURT: That's a different --

MS. MENNINGER: The hypothetical was if our client wasn't involved. If our client wasn't involved then it would be an opinion.

THE COURT: Thanks very much. I'm glad for this clarity, which frankly, at the moment, alludes me.

Okay, let's move on. Yes, I'll hear from the movant.

MS. McCAWLEY: Thank you, your Honor.

The first order of business we'd like to address, if it's okay with the Court, is our filing, which was 691, which is our omnibus motion in limine. And if it's okay with the Court, we've split that up a bit. I'm going to start with respect to that motion in limine.

What we attempted to do with our motion in limine was streamline the trial. And your Honor, based on the comments you've just made, if you want to give me guidance, I'll tell you what I'm thinking with respect to this and what we put forth in our filing.

But there are statements that are attributed to my client in other articles and things. For example, there are statements about Bill Clinton being on the island, and the defense wants to bring in those statements to show that -- they believe they can show evidence that he wasn't on the island, so therefore, my client is a liar or is lying about that.

Now, your Honor will remember, back in June we sought to depose him because we were concerned about that fact, that they were going to raise it, and we wanted to have him under oath --

THE COURT: Let's back up a little bit.

MS. McCAWLEY: Sure.

THE COURT: What and where was the statement made?

MS. McCAWLEY: The statement was made in a March 5th article. So not the two articles we showed you yesterday --

THE COURT: The Churcher article.

MS. McCAWLEY: Yes. But it was another article that came out in March of 2011.

And the statement was with respect to my client saying she saw him on Epstein's island. She was introduced to him there. Although no allegations of trafficking or anything of that nature, just that she was there. And they are seeking to introduce evidence through Louie Freeh, who we'll discuss in a moment, they've proposed, and he's clearly an expert that was undisclosed, and through a FOIA record, and through the articles to allege that he wasn't on the island.

And so in your Honor's order in 264-1, which is one of the sealed orders, you did not allow us to depose him because you said it was irrelevant.

So we're now in a position where at trial they want to put forth that information against my client, and I don't have an under-oath statement from that individual saying whether or not he actually was.

Now, what we know is he flew with Jeffrey Epstein at the same time 19 different times internationally and nationally, but we don't have him with respect to this particular allegation under oath. So we would say it would be highly prejudicial for them to be able introduce evidence saying that he wasn't there or that they have some proof or some expert saying he wasn't there when, in fact, we weren't able to ask him directly, the person who is at issue, under oath, whether or not he did, in fact, go there.

So one of the streamlining of this case is that allegation has nothing to do with sexual abuse, it doesn't have to do with the statements --

THE COURT: It has to do with credibility.

MS. McCAWLEY: Well, your Honor, I would say, if you're inclined to think that that has --

THE COURT: Well, look. I'm no genius. I don't claim any -- but you know, that is precisely what the defense is going to say.

MS. McCAWLEY: Right. I understand, your Honor. And that's why we sought to depose him because it's inherently unfair --

THE COURT: Okay. So you would say I made a mistake.

MS. McCAWLEY: No, your Honor. I think it should be excluded, and in my view, I think it's not relevant to the issue at trial here. But they are, of course, going to argue that it is and that they want to bring that in. In fact, like I said, they've got lined up Mr. --

THE COURT: Well, on the question of credibility, why isn't it relevant?

MS. McCAWLEY: Because the statement -- so this case is about whether or not she was sexually abused and trafficked --

THE COURT: Now, that's where I started out. Is it about that? If that is your position, that's something else. If it's a question about her sexual abuse, in addition to, then that's something else. But you just said it isn't about that, it's just about Maxwell and did she tell the truth about

Maxwell.

Well, I suppose, I suppose -- I haven't heard the other side and I haven't really thought it all out -- but I suppose if she is untruthful in other instances, that may be relevant to her credibility.

MS. McCAWLEY: Well, your Honor, if that's the Court's position, again, we would be in a circumstance -- I mean, there's a couple reasons why the evidence itself that they want to put forth doesn't come in.

THE COURT: Well, that's a different thing.

MS. McCAWLEY: Sure. That's part of our motion, as well, your Honor.

THE COURT: Sure. I read that. I understand that.

MS. McCAWLEY: Right. So on the same note, since we're talking about this, I'll just tick off the few that fall within this category, if you don't mind. I understand, your Honor's position, so --

THE COURT: Well, I'm not sure what my position is right now.

MS. McCAWLEY: Okay. So with respect to -- there's another category where there's been statements where my client said that she was trafficked to foreign presidents and world leaders that they want to bring into evidence. And in order to streamline the case, we've said, well, there's none of those people on the witness list, and just statements in an article of that nature shouldn't be able to come in. Because when we talk about a character issue, what's at issue here is reputation, and reputation to show the truthfulness of that would not be able to be proven in that circumstance because we don't have the other individuals there to make that statement, so there's no substantive evidence on that point that would be coming in.

And the third category is with respect to Mr. Dershowitz, who is on the defendant's witness list for trial, and we have a few points there to raise. I mean, one is obviously that if that were allowed to come in, that causes the trial to become a mini trial about whether or not he, for example, was in the places where she says he was, his calendars, his credit card receipts, his telephone records, all of that. It gets into the issue, you know, obviously we have another witness who says that they were in a similar circumstance with respect to him. So it takes the trial away from whether or not the allegations relating to Maxwell are true or false and turns it into a trial about another individual who we have not made a claim against who comes in.

There's also a problem with respect to that because he is also -- he has claimed attorney/client privilege as to his conversations and his advice with respect to Epstein which relates to the issues with Maxwell. So in other words, he would be able to testify what he says he didn't do, but then any questions we wanted to ask him about Epstein or Maxwell he says he's got an attorney/client privilege. So we're hand-tied because we can't ask about the issues that we need to ask about with respect to that witness. So in my view, it's highly prejudicial to have him as a witness at trial when, again, our claims are not against him, and we have those issues.

Now, you did have -- in your February 2nd order, you also precluded us from asking questions that we contended were non-Fifth Amendment questions of Jeffrey Epstein about Dershowitz, holding that those were not relevant. So we're in a situation where we have another witness that we are not able to elicit all of the information we need to be able to prove the truth or falsity of that, and again, it would be subject to a number of mini trials on that issue of Mr. Dershowitz.

So with respect to those three categories -- and it also allows them to use the attorney/client privilege as a sword and a shield in the midst of a trial, which is inherently unfair to my client, as well.

So in our view, it's highly prejudicial under 403. Those groupings should not come in. It should not be about, for example, Clinton and whether or not he was on an island, or Mr. Dershowitz or these other world leaders, it should be about the defendant and her statements that my client was lying when she claimed to be abused and trafficked in those statements.

THE COURT: Just a second.

MS. McCAWLEY: Sure.

THE COURT: What you just said, could you repeat what you just said?

MS. McCAWLEY: Yes. So the statements that Ms. Maxwell denied were statements that my client made that defendant and Epstein trafficked her, brought her in, had her participate in the sexual abuse of her and other females, she was in that circumstance, she lived that circumstance for a period of time, and so Maxwell came out and called my client a liar, said she was lying about those statements that she made, and said that, obviously, as you know, to the international press about my client and what her experience was with them.

So with respect to that, your Honor, those are the categories that we believe would help streamline the case, and again, that those witnesses would be highly prejudicial.

On the issue of the information that they'd like to put in with respect to Mr. Clinton, they have Louie Freeh who they've identified. This is a former FBI director.

THE COURT: I know.

MS. McCAWLEY: You know, yes. So they've put him in without giving us a Rule 26 expert report. He was never disclosed during the time period. His report or what he's going to say, as we understand it, is that he's reviewed the FOIA response and that there's no evidence in his view that Clinton was on this island, again, even though he flew regularly with Mr. Epstein to other places.

So again, we didn't get to depose him as an expert in this matter. We didn't know that he was going to be called as an expert. They're saying he's a lay opinion because he's a private investigator, your Honor. The case law says otherwise. He's been certified as an expert in these exact kind of cases. We put those in our brief. So your Honor, he is really a wolf in sheep's clothing. They're trying to put him on as a lay opinion when he's really an expert witness in this case with sufficient and sophisticated knowledge, that the jury will recognize him as someone who has expertise in this area so, your Honor, we believe he should be precluded from testifying. He has no personal knowledge, it's simply his reliance, as we understand it, on the one FOIA response letter.

So your Honor, with respect to the FOIA response letter that's at issue that they are going to try to get into evidence, we've put forth in our papers, again, that's a hearsay document. It's highly prejudicial under 403. They say that it meets self-authentication, but unlike the documents that we showed, for example the 302 that have the seal on it, it has none of those qualifications.

They cite to two cases, the Zamara case and the Gary case. Both of those involve getting into evidence underlying records that were produced by the government, not a FOIA letter. So what they're trying to produce is a letter that says we've looked and we can't find these records that you've requested.

Now, it doesn't address the fact that the government only typically retains records for a few years when they were requesting records from 15 years ago, so it doesn't have the indicia of trustworthiness to be able to say that this is actually the fact because, of course, as we know, the government regularly has to get rid of records.

So to use this letter to say, 'Ah-hah, he was never on the island,' when we never got to examine him under oath and say, 'You traveled with him a bunch. Did you also go to the island? My client says she met you there.' We didn't get to ask those questions, so we're in a situation now where that letter coming in would be highly prejudicial because the jury will wonder, well, what does he have to say about this? And we haven't been in a position to be able to do that.

So your Honor, for all those reasons we believe that Mr. Freeh should be excluded, the FOIA letter should not come into evidence, and again, we believe that the issue of Mr. Clinton should not be an issue relevant to this trial.

Next, your Honor, they also seek to include statements, hearsay statements and newspaper articles about Prince Andrew, and it's actually not his denial, as I understand it, Buckingham Palace's denial of the allegation of my client. But again, Prince Andrew is not on the witness list, we're not able to cross examine him, so what they want to do is introduce triple hearsay of Buckingham Palace saying what Prince Andrews said in a news article without the reporter against my client without our ability to cross examine him on that.

So your Honor, they've tried to argue a little bit of a securitous way, I think that it's a verbal act on behalf of Prince Andrew, it doesn't meet that criteria, there's been no statement by -- there's been no action by my client against him, and what's at issue in this case is, again, Maxwell's statements against my client.

The case that they cite actually, the Minemyer case, goes against them. It actually talks about how you would have to call the reporter, that that couldn't come into evidence. And so, your Honor, for those reasons, we believe that, again, that's a distraction, it's highly prejudicial to allow a triple hearsay document like that to come in without our ability to be able to cross examine that individual. So for those reasons, your Honor, we believe that that should not come in.

They also made an argument that it's somehow an intervening cause or that, you know, it goes to the issue of she should be seeking damages from Prince Andrew, things of that nature. But as we know, because your Honor reviewed the case law with respect to the summary judgment, each individual is responsible for their own defamation, so it doesn't come into consideration whether she could have sued six people for it, 20 other people for it, this case is about Maxwell and her defamation against my client.

So again, your Honor, if you look at Sack on Defamation, it addresses that directly, and we believe that that should not come into evidence.

So your Honor, that's the first chunk of the omnibus motion that I was addressing. I'm not sure how you want to take it, if you want to have opposing counsel speak on those issues now and then move to the others, or if you want us to keep moving through it?

THE COURT: What's your preference?

MS. McCAWLEY: I think keep moving through it would be great.

THE COURT: What?

MS. McCAWLEY: To keep moving it through it, if that's all right, so we can get through argument and then have them address it?

THE COURT: Sure.

MS. McCAWLEY: Thank you, your Honor.

MS. SCHULTZ: Your Honor, this is Meredith Schultz for the plaintiff. The next article in the omnibus motion is to exclude testimony references to prior sexual assault. This is an issue that I spoke on yesterday related to another motion regarding the same, so I'll keep it brief.

But prior sexual assault, all of which occurred while Ms. Giuffre was a child, it's irrelevant to this action. It doesn't come in under 401. It doesn't involve defendant. It predates even meeting defendant. And these assaults do not make it more or less probable that defendant defamed Ms. Giuffre, and neither does it tend to prove or disprove that defendant abused her.

These are also classic examples of evidence that should be excluded under Rule 412. The Rape Shield Law forbids evidence concerning these unrelated events involving Ms. Giuffre. This rule should be strictly enforced, particularly because these events happened when she was 14 and 15 years old. Rule 412(a) bars this evidence if it's offered to prove that she engaged in any type of sexual behavior to prove any type of disposition.

It should also be excluded under Rule 403. This is extremely prejudicial, and because it is irrelevant, it would only encourage the jury to view Ms. Giuffre, a married mother in her 30s, as an immoral person for having sexual contact with individuals as a child.

This should also be excluded under 608(a), which limits interaction of evidence for specific instances of conduct in order to attack the witness' character for truthfulness. Now, I spoke about this at length yesterday. Defendant tries to offer two particular things to say that, oh, she wasn't truthful about something, about being sexually assaulted, but the documents themselves describe something that's unequivocally sexual assault under Florida law, something that is unequivocally nonconsensual. So that would honestly be another mini trial and would take us far afield of what facts are relevant to this case.

And again, any minor probative value that's past sexual assault that Ms. Giuffre experienced as a child is completely swallowed by the prejudicial effect on the jury.

MR. CASSELL: Your Honor, I think I'm the next one up. For purposes of clarity, we're up to point number 7 in our omnibus motion.

This one I think is just a very simple and straightforward one. We move to exclude derogatory sexual characterizations. This is a case that your Honor has been framing this morning. It doesn't require use of a term from defense counsel, for example, describing our client as a prostitute or as a slut. We thought we would get agreement when we saw the responsive papers from the defense, but as you know, they objected in it's entirety to this motion, so we're here asking that defense counsel not refer to our client as a prostitute, not refer to her as a slut, and they also advise their witnesses that such language would be inappropriate in a federal trial dealing with a defamation issue.

On this particular point about prostitute, it's interesting. Am I conjuring up something that's not going to happen? No, your Honor. The defendant's own expert report described our client as a prostitute. Your Honor has under advisement the expert report from Dr. Esplin, and so I deposed Dr. Esplin, and I said, "Are you sure that's an accurate term in the context of this case? Because we have a child who cannot consent to sexual activities." And he backed off immediately and agreed that that was an inaccurate term for him to use to describe my client, Ms. Giuffre. So even the defense's own expert says the term "prostitute" is inappropriate.

Your Honor has authority, of course, under Rule 611 to manage the trial, to avoid undue harassment or embarrassment. Also Rule 403 allows you to restrict things that would be substantially prejudicial with no probative value, which is exactly what we have here. So we would ask you simply to reign in derogatory language, both from witnesses and opposing counsel.

MS. SCHULTZ: Your Honor, I'll be addressing the next several points in the omnibus motion, starting with number 8. I think I can narrow this issue a little bit at the outset.

Ms. Giuffre concedes here that illegal or nonprescription use of drugs during the years that she was with defendant is admissible. However, any evidence pertaining to any use of drugs, illegal or not, and alcohol from any periods before or after Ms. Giuffre was abused by defendant is irrelevant to this action and should be excluded under Rule 401.

It is also, of course, highly prejudicial and should be excluded under Rule 403. Whether or not Ms. Giuffre ever used drugs while not being abused by defendant does not go to any claim or defenses in this case.

Courts in the Southern District of New York routinely exclude evidence of prior drug use under both of these rules, as fully briefed in the papers. Defendant attempts to admit this evidence of prescription drug use related to damages, specifically whether or not the emotional distress Ms. Giuffre suffered is preexisting.

THE COURT: And why do you have it in your expert's report?

MS. SCHULTZ: Well, our expert is -- I'm assuming you're referring to Dr. Kliman, who is a physician. He's a medical doctor. He took a full --

THE COURT: There's a whole thing about it. Are you going to withdraw the --

MS. SCHULTZ: No, your Honor. We're only claiming damages with respect to the emotional distress suffered from the defamation. And also, taking drugs prescribed for various mental health issues is not the same thing as emotional distress. They're two different issues. So any marginal probative value is outweighed by the prejudice. Again, this is only seeking damages based on defendant's defamation.

I'm going to move on to point number 9. Ms. Giuffre seeks to exclude any alleged criminal history from coming into this case. And the Federal Rules of Evidence bar the introduction of this evidence, full stop.

As the Court is aware, the only way criminal history could come into evidence is through Rule 609, but that rule itself bars this evidence because, one, there's no conviction, and two, the alleged crime does not go to truthfulness.

Of the two parties, your Honor, Ms. Giuffre is the only one who has not been convicted of a crime here, this is merely an alleged prior bad act which is excluded under Rule 404.

And this alleged act, which Ms. Giuffre denies, does not go to truthfulness, and that's an important point here. An accusation of a crime with no conviction does not go to truthfulness, especially a crime like this, which specifically is defendant says she stole from a tip jar when she was a teenager. Knowing that this type of evidence is excluded, counsel for defendant has put forth an unsupported argument that Ms. Giuffre left the United States because of allegations that she stole from a tip jar. That is, of course, false. She left the United States to get away from defendant's abuse.

And moreover, the documentary evidence in this case, which has been produced in discovery and submitted to this Court, shows that it was defendant who sent her to Thailand, sending her with handwritten instructions about what to do when she gets there. So if this unsupported argument that defendant left the United States because of some accusation of a tip jar is to be believed, then that makes defendant an accessory after the fact and implicates her in the wrongdoing.

So I don't -- basically, there's just -- this argument is also undone by the fact that later, Ms. Giuffre comes back to the United States to live here. She's not fleeing accusations, she was fleeing defendant. If she were worried about criminal liability in the United States, she wouldn't come back to live here.

But the overall point is any marginal probative value from these allegations, which I don't think there is any, but it's far vastly outweighed by the prejudice it would cause Ms. Giuffre and should be excluded under all those rules.

Moving now to point 10. Ms. Giuffre has requested that the Court exclude any evidence regarding special schooling, truancy, and juvenile delinquencies. For this argument, your Honor, I request that I approach the bench and give you a few documents upon which these arguments are based. I have four documents that I'm handing up.

I have to get a little bit into the weeds here, so please bear with me. In this case, Ms. Giuffre -- well, school records have been part of discovery. They show a history of rampant truancy and failed courses. This constitutes prior bad acts which are excluded under Rule 404, particularly since these bad acts do not go to truthfulness, so they're also excluded under Rule 608.

They should also be excluded because their prejudice that it would cause Ms. Giuffre greatly outweighs any probative value and should be excluded under 403.

There's a huge remoteness issue here, your Honor. These truancies and juvenile delinquencies took place many years ago when she was a minor. There's a lot of case law on this that is in Mr. Giuffre's brief on page 22 to 23. But what you should be aware of, your Honor, is that a close examination of records, looking up what the number codes on these transcripts actually mean, it shows the opposite of the argument that defendant advances in her response brief; that she was in school, and therefore, not abused by her client.

To the contrary, the records show that she was not in school over half the time she was supposed to be and did not complete her courses. These transcripts are not self-explanatory. Indeed, looking at the face of them, it seems like she was enrolled and attending school, but much of the information in these records are number codes used by the Palm Beach County School District. These school records could not be placed into evidence for all the reasons above, but if you are inclined to do them, you could not place them into evidence fairly without testimony regarding what all these codes on the transcripts mean, or at a bare minimum, the introduction of evidence and instruction that makes explicit what all the codes on the transcripts mean.

Defendant either failed to do her due diligence on this and looked at what the codes are before advancing this argument, but either way, it's not a good faith argument because, as you can see in the document I handed up, these codes and their meanings were detailed at length in Ms. Giuffre's opposition to the motion for summary judgment, and I would ask the Court to refer to the facts at page 32 of the statement of facts.

So what the records actually show is rampant truancy, years of absence from school while defendant was abusing her, which show ample opportunity for abuse, and are, in fact, in accord with the flight records, which have also been produced in this case, which place Ms. Giuffre on 23 flights with defendant aboard Jeffrey Epstein's private plane.

So as these records actually show truancy, failed grades, failure to complete courses, these should be excluded under all the rules I cited earlier, or at a bare minimum, instruction to the jury about what the codes mean and detailing how many days of school Ms. Giuffre actually attended, a number that is conspicuously absent from defendant's brief.

Turning next to plaintiff's motion in limine number 11. This is a related issue. We ask that the Court exclude characterizations of Ms. Giuffre's bad behavior during her childhood, including characterizations of her as a bad child or a runaway. Defendant's response to this tries to conflate two separate things; prior bad acts, an assault on her character on one hand, with a reputation for truthfulness of another.

Prior bad acts she may have committed as a child, like running away, is inadmissible and a defamation action where the damages relate to her reputation. That she ran away from home or was an ill-behaved child does not go to truthfulness.

These events also do not go to her reputation. Her reputation for truthfulness as an adult prior to the defamation is the only reputation that's at issue in this case. Defendant's defamatory statements damaged Ms. Giuffre's reputation when she was in her 30s. This does not open the door into evidence of Ms. Giuffre's generalized character, particularly one from a troubled childhood. Occurrences, such as running away from her home when she was a child, are simply prior bad acts under Rule 404 that should be excluded. They should also be excluded under Rule 405 because this is introduction of evidence to try to show her character. And Rule 608(a) also limits evidence and testimony about a witness' reputation for having a character for truthfulness or untruthfulness, it doesn't come in under that rule.

Her reputation for truthfulness does not go to any bad acts she may have committed 20 years ago. And your Honor, even criminal convictions are generally not admissible 10 years after the fact. So presentation of this type of evidence is simply nothing more than a smear campaign, which is prescribed by multiple Federal Rules of Evidence.

And finally, any marginal probative value of these bad acts as a child is vastly outweighed by the undue prejudice it would cause Ms. Giuffre before a jury.

Your Honor, now I'm turning to point number 12. We've asked the Court to exclude evidence relating to the tax compliance of Ms. Giuffre's not-for-profit Victims Refuse Silence. Rule 401 is the first rule under which this should be excluded. The alleged tax compliance of her not-for-profit does not go to whether or not defendant defamed Ms. Giuffre and does not go to whether or not defendant abused Ms. Giuffre.

It should also be excluded under 403. It is highly prejudicial. It would give the wrong impression to the jury that Ms. Giuffre's organization is not tax compliant, which, in fact, it is a fact that defendant does not acknowledge in her briefing.

Proving whether or not Ms. Giuffre's not-for-profit is tax compliant would also be a mini trial and, frankly, a sideshow to this case.

Furthermore, all of defendant's conclusions about

Ms. Giuffre's not-for-profit tax compliance are based on an errant report by her purported expert, an expert who should be excluded from testifying because his report lacked methodology and he opined on topics far afield from his expertise.

Second, any allegations that her not-for-profit is not tax compliant is prejudicial, misleading, confusing to the jury because it has nothing to do with the claim at issue in this case.

Your Honor, we asked for defendant's tax returns in this case. If they go to truthfulness, as defendant argues, they also go to defendant's truthfulness. At this point, we're not going to get them until the first day of trial, so we will not be able to effectively cross examine defendant on those tax returns, and we won't be able to see until then if she's paid taxes on all the money and gifts and in-kind payments from Epstein that she's received or has kept that away from the government. Unlike Ms. Giuffre's tax information, defendant's tax information goes to our case in chief and is relevant evidence.

On point number 13, we move to exclude evidence relating to Ms. Giuffre's alleged tax compliance. Your Honor, this is a defamation action where reputation is at issue. Tax compliance does not go to a reputation, it is a private matter.

Second, there is no evidence in this case that any government, either United States or Australia, believes that she is noncompliant with her taxes. Defendant's purported expert's evaluation of this is wholly flawed, as explained in Ms. Giuffre's motion in limine on the same.

Similarly, Ms. Giuffre's taxes are wholly irrelevant to this case. Even actions brought by the government, your Honor, where the cause of action is centered on nontax compliance exclude evidence of prior tax noncompliance when it takes the case too far afield of the issue being tried.

Courts also exclude this evidence under 403 if there's no substantial nexus between the alleged tax noncompliance and the matter at hand. Here, defendant fails to show any type of substantial nexus to this defamation claim. None whatsoever.

Additionally, resolving Ms. Giuffre's tax compliance, this is a point that's in dispute among the parties, and resolving such an issue would also involve another mini trial where Ms. Giuffre would put on evidence of her tax compliance and, at the end of that mini trial, the jury would have no more information whether or not defendant defamed Ms. Giuffre when she called her a liar about being sexually abused. Trying to make this an issue, this is simply a device for putting the settlement agreement and the amount between Ms. Giuffre and Jeffrey Epstein into evidence.

As has been briefed extensively, such a settlement payment is tax exempt under the United States law, but that's all this is, it's a device to try to get an improper admission of a settlement amount between Ms. Giuffre and Jeffrey Epstein. Accordingly, this should be completely excluded because any marginal probative value this has on the claims is greatly outweighed by the prejudice to Ms. Giuffre.

I am not up for the next one, so I'm going to take a break. Thank you.

MR. CASSELL: Again, your Honor, I'm up to number 14 now, the issue of Ms. Giuffre's being a victim of domestic violence. This is not relevant or minimally relevant. It's Ms. Giuffre's burden, of course, to show the emotional distress damages that she suffered as a result of Ms. Maxwell's defamatory statement, and the jury can agree or disagree with whether she's carried her burden of proof.

If we understand the defendant's argument correctly, they say, well, this would have been a distressing event in your life and, therefore, we should be free to introduce it in front of the jury. Of course, that argument would allow, if accepted, essentially any bad thing that's happened in any plaintiff's life to be introduced if they seek emotional distress damages because, my goodness, this event here or there had some emotionally distressing effect on you. So it has minimal to low probative value, and the prejudice is very substantial.

Your Honor, obviously, has a great deal of experience and are well aware of the domestic violence, blame the victim attitude that has to be confronted in various cases. Frequently, if there's domestic violence that's at issue, an expert witness comes in to explain to the jury, oh, why didn't she leave? Why did she stay with this fellow who was beating her up? She was free to walk out of the relationship. Why didn't she do so? And there is a whole literature that I know your Honor is familiar with and that we cited in our brief, as well.

We don't want to get into that in front of the jury in this particular case. This is a blame the victim tactic that shouldn't be allowed. This has very marginal, if any, probative value and a very significant prejudicial effect because the jury will potentially blame the victim for staying with her abusive spouse.

Now, in addition, you'll notice from the pleading that the defendants aren't intent just on asking questions about this, but they also want to go into the whole criminal case against Ms. Giuffre's husband, you know, whether he appeared or what the felony charges are and a variety of things. That, obviously, has even less probative value than the information I was discussing a moment ago and should be independently excluded.

The next issue up is item 15. And here, we ask to have excluded any suggestions that sex with a 17-year-old is permissible. You will recall that there's debate about exactly what years and what birthdays were in play and exactly what Ms. Giuffre said about whether she was 15, 16, or 17. Fair enough. They can cross examine her about, 'Did you say 16 when you were, in fact, 17,' or whatever it is. We're not trying to exclude that.

The limited point that we're trying to address here is that they shouldn't say, 'Ah-hah, she was 17, therefore, she's fair game.'

Under Florida law that we've cited in our pleadings, there is no possibility of a child under the age of 18 consenting to sexual activities of the nature that are at issue here, and therefore, the defendant should be precluded from making that kind of suggestion. And so that's item 15.

MS. SCHULTZ: Turning to item 16 in the omnibus motion. Ms. Giuffre has moved the Court to exclude medical records. Here, I would actually like to direct the Court's attention to defendant's response. Defendant here does not cite a single case where a court allowed admission of unrelated and irrelevant medical records into evidence at trial.

Defendant's brief also doesn't show how any medical records are relevant here, and there are privacy issues at stake. In fact, defendant does not cite to a single case in which a court allows any medical records into evidence.

In defendant's entire response she cites two cases only. Neither of them have anything to do with what documents might be admitted at trial. Both are orders resolving discovery disputes under Rule 26.

Apart from her medical records, while defendant was abusing her, such as when defendant took her to a hospital here in New York when she was only 17, and the psychological records related to Ms. Giuffre, which have been produced, which incidentally are from 2011 and name defendant as her abuser, no other medical records are relevant and should be excluded under Rule 401.

Ms. Giuffre is seeking damages for emotional distress from defamation. It does not open up the flood gates to every single medical issue she's ever had in her life. Ms. Giuffre has produced records, everything from treatment for a ferret bite to details of her giving birth. These are not relevant, and we can have a ruling in advance of trial that these things should be excluded.

Defendant only seeks to use these records to confuse the issues before the jury. Defendant offers no reason for addressing the relevance of such documents one by one at trial, and I think these can be safely excluded at this juncture.

MS. McCAWLEY: Your Honor, next is number 17, which we addressed in our papers, as well, about the prior settlement agreement. You've heard about it in this case, and we have said that that should not come into evidence.

I think they'd like to use it to propose that that amount has something that the jury should consider. Your Honor, the papers set forth very clearly that there's a specific rule of evidence directly on point with respect to settlement agreements, and they can't be used in that manner.

Your Honor, we cite to our papers on that with respect to any prior settlement agreement being entered into evidence at the trial.

MR. CASSELL: I believe I have the next three.

Item 18 then is defamation litigation. And your Honor is aware that there was a separate lawsuit that's spun out of this situation where Cassell and Edwards filed a defamation action in Florida State Court against Alan Dershowitz. Alan Dershowitz then counterclaimed. That was litigated in Florida State Court for about a year. Ultimately, the parties settled their differences in an undisclosed financial arrangements and, as part of the comprehensive settlement, Cassell and Edwards then withdraw summary judgment against Dershowitz.

It was as expressly understood when the parties agreed upon this confidential settlement, there was then a statement in which it was said that Ms. Giuffre reaffirms her allegations, and the withdrawal of the reference to the filings is not intended to be and should not be construed as being an acknowledgment by Edwards and Cassell that the allegations made by Ms. Giuffre were mistaken.

There was a portion of the statement that talked about "mistake", and that was indicated in the pleading withdrawing the summary judgment motion as follows: "Edwards and Cassell do acknowledge that the public filing in the Crime Victims Rights Act case of the client's allegations against Defendant Dershowitz became a major distraction from the merits of the well-founded Crime Victims Rights Act case by causing delay and, as a consequence, turned out to be a tactical mistake." "Tactical mistake." "For that reason Edwards and Cassell have chosen to withdraw the referenced filing as a condition of the settlement."

That's all a very interesting lawsuit, but that's a lawsuit that does not have Ms. Giuffre as a party. It was Cassell and Edwards versus Alan Dershowitz, with claims going back and forth. Cassell and Edwards were, of course, vindicating their own professional interests and their professional reputation responding to the attacks that had been made by Mr. Dershowitz, and they chose to settle the case, as did Mr. Dershowitz, for undisclosed financial reasons.

And also, from the fact I think your Honor is now aware, that there were some witnesses who were not available. Sarah Ransome has come forward in this case to say that she was a traffic to Alan Dershowitz in the same way that Ms. Giuffre alleges, and that was information that has only recently become available.

The point is, you have enough business on your hands without getting into the details of another separate lawsuit that did not involve Ms. Giuffre as a party, and so we've moved in limine.

And let me make clear that I emphasize the narrowness of our motion here. We seek to preclude evidence involving that litigation. Your Honor has already heard from my colleague, Ms. McCawley, who has presented our argument for why Dershowitz should not be in this case at all, and of course, if we prevail on point 1, this point becomes irrelevant.

But in addition to point 1, we don't need to be getting into the details of the separate lawsuit. It's not relevant to the case of Giuffre versus Maxwell. Defendants, in their responsive brief, if I understand correctly what they say is, oh, well look. Why didn't Ms. Giuffre join the lawsuit or why hasn't she filed a lawsuit against Dershowitz? What's going on there?

Well, of course, your Honor is aware, there are a variety of statutes of limitation around the country, and indeed around the world. Ms. Giuffre has not -- those statutes have not all run at this point. There are varying considerations that go into whether or not someone like Ms. Giuffre would file a lawsuit, and these issues shouldn't be discussed in front of the jury. That's nothing to do with this particular lawsuit.

Moreover, defendant apparently argues that statements that Edwards and Cassell made in this other lawsuit are somehow binding on Ms. Giuffre. Edwards and Cassell had separate legal counsel, Florida attorney Jack Scarola. Whatever was going on in that case isn't binding on Ms. Giuffre.

Under the relevant rules, an attorney's statements are binding on a client only on a matter within the scope of the relationship. And this was vindicating separate professional interests, this was not vindicating some interest of Ms. Giuffre.

So for all those reasons, we ask that the defamation litigation between Dershowitz and Edwards and Cassell be excluded. Of course, you have the separate issue of Dershowitz in front of you already.

Let me turn then to point number 19. Here again, we have a narrow issue presented to your Honor. We are asking that you exclude Judge Marra's ruling on the joinder motion. As your Honor is well aware, the triggering event in this case was when Ms. Giuffre, then known as Jane Doe Number 3, filed a motion to join Jane Doe 1 and Jane Doe 2 in the Florida pro bono Crime Victims Rights action.

Now, Judge Marra denied that motion to join, but at the same time he said, "The reason I'm denying the motion to join is you can participate in the case in other ways without being a formal party." He cited, and I quote, "Of course, Jane Doe 3 can participate in this litigated effort to vindicate the rights of similarly situated victims" --

THE COURT: I'm familiar with it.

MR. CASSELL: Okay. Right. So that's Judge Marra's ruling.

And you understand that was obviously on a technical joinder issue. The joinder issue, whether that was a good joinder motion or a bad motion, has nothing to do with whether or not Ms. Giuffre was defamed.

THE COURT: How do you propose to handle the joinder motion evidentially?

MR. CASSELL: Right. We think the joinder motion should simply come into evidence as the pleading to which Ms. Giuffre -- I'm sorry -- Ms. Maxwell was responding.

THE COURT: Lock, stock, and barrel?

MR. CASSELL: So we are obviously waiting for guidance from your Honor. For example, if you say, look, Dershowitz, let's just not get into that, that's --

THE COURT: That didn't answer my question. Please.

MR. CASSELL: I apologize.

THE COURT: You talk about many trials, many arguments. You want to put in the entire motion?

MR. CASSELL: Yes, unless your Honor -- I want to be direct here.

Yes. However, if you say, look, Dershowitz isn't coming into this case, there are some allegations about

Dershowitz that we would then believe, in light of your ruling, should be redacted. But until we have any rulings from your Honor restricting the case, it's our position that all --

THE COURT: But you don't have an edited version of the intervention motion that you would like me to consider.

MR. CASSELL: We would propose one once we get rulings from your Honor on the motions in limine.

THE COURT: By the way, just parenthetically, folks, these motions in limine are good fun, and we're all having a nice time, but they're not binding. I mean by that, I'm expressing my view, or I will, I hope, some day express my view on these issues, but the trial may turn in a different direction and, you know, who knows. Okay.

MR. CASSELL: We understand. And one of the reasons we have not proposed a redacted joinder motion, that showed up in a reply brief from the defendant, we didn't move to file a surreply with a possible motion. We think the best way to proceed, and we're happy to get guidance from your Honor, but once we have rulings from you on what's in the case and what's out, then we might go through the joinder motion. But where we're sitting today, the joinder motion goes in in its entirety.

But what does not come in is then, all right, that's a legal pleading. Gee, I wonder what happened. Judge Marra made a ruling, we don't need to get into the details of that ruling.

Of course, we would want to explain that there were nine separate reasons why those allegations were included. Judge Marra referred to the first of the nine reasons. We have eight other additional reasons why those were included. It would essentially, again, be a mini trial about, well, what does a joinder motion mean? Did you file under Rule 15? It should have been under Rule 21. What did the judge do?

It has no bearing at all on the issues in the case, and it, of course, has very substantial prejudicial effect because it leads to a confusion of the jury. The jury's trying to figure out, well, what's going on in the Crime Victims Rights Act case when the issue is whether or not Ms. Giuffre defamed.

Now, there is an issue in their pleadings. They say, well, this could end up being relevant because there might be some kind of a privileged setting issue. Again, I think your Honor correctly was pointing out a moment ago, if things show up in the trial, it's possible that something could change, but we don't anticipate that becoming an issue in the trial at this point. If the issue of whether this was a privileged setting somehow becomes an issue in the case, then it would be time to revisit that during the trial.

In any event, issues of whether this was a privileged setting or not aren't litigated in front of the jury, that's a legal issue for your Honor to determine whether the setting was or was not privileged. We don't take jury evidence on that, you know, Judge Marra's ruling, and therefore, that should be excluded. So that is item number 19.

Let me turn then to item 20, and I'm handling that. This is essentially a hearsay exercise. We want information to be excluded regarding Rebecca Boylan. Why? Because Rebecca Boylan has not been deposed and is not going to be a witness in the case.

As we understand what the defendant is planning to do, she's planning to call Mr. Dershowitz. Mr. Dershowitz is going to say Ms. Boylan told him that Ms. Giuffre told him something, and so we have the classic hearsay within a hearsay situation. The problem, of course, is that Boylan is not here.

The defendant's pleadings say, ah-hah, but this is an admission by Ms. Giuffre, and it would be if Ms. Boylan were on the stand so we could ask her questions about, well, did Ms. Giuffre really say that? And what did she mean? And wasn't she saying that she's been abused by Ms. Maxwell? But they want to skip over that intermediate stuff, have Dershowitz describe what Boylan describes Ms. Giuffre said, and that's obviously -- and then I'm assuming Dershowitz is going to put his spin on what Ms. Boylan allegedly said to him. There are no set of circumstances in which that hearsay within hearsay could be admissible because Ms. Boylan has not been deposed, and is not here, it's rank multiple hearsay.

I am about done at this point.

With regard to the remaining issues, you'll be happy to hear that I think things can be sped up. We believe that these issues should simply be, as your Honors I think was suggesting a moment ago, deferred to trial.

Items 21, 22, 23, 24, 25, 26, 27, 28, and 29, those were sort of just kind of protective measures. The one footnote or caveat we would add to that, your Honor. We think this gets punted to the trial, but we would simply ask your Honor to direct defense counsel before they let the cat out of the bag on any of these that there be a sidebar or hearing outside of the jury just so that, you know, our motion in limine doesn't become moot because they've already effectively put it in front of the jury.

The one that's of particular concern is alleged bad acts by the defense team. At various points, I think your Honor, unfortunately, has seen some, you know, frankly aggressive language directed to the plaintiff's team here by the defense team. We're prepared to respond to each and every one of those allegations. We've tried not to get into the back and forth because we think it's irrelevant.

But if there was to be some kind of an attack launched on any of the members of the Boies Schiller Firm, of Brad Edwards, myself, we would ask that we be given leave to address that at sidebar, in-camera, or outside the presence of the jury so that we can keep the fact that we have done something bad that should then be held against our client away from the jury.

But all these remaining things we are in agreement, I think with the suggestion you were perhaps making a moment ago, we can deal with these issues at trial.

That's our omnibus motion in limine, your Honor.

THE COURT: Thank you.

MS. MENNINGER: The omnibus motion reads like a list of everything plaintiff has lied about or anything that would undercut her claim for damages.

Plaintiff quoted Passim in her reply brief from a particular federal evidence treatise, and I would like to tell the Court, she left out the most important parts, and that is the ones that relate to 405(b).

As that treatise reads, "Character is an element of a defense in a defamation case if the defending party claims that the statements in question are true and seeks to prove that the plaintiff has the character ascribed to her or to reduce damages by showing that her reputation is so bad the statement did no harm.

"In such cases, pursuant to Rule 405, all forms of character evidence are admissible wherever relevant, including opinion, reputation, and specific instances of conduct."

As your Honor found in our motion to dismiss ruling of February 29th of last year, "Though defendant never called plaintiff a liar, to call her claims obvious lies that have been shown to be untrue demands the same meaning. Plaintiff cannot be making claims shown to be untrue that are obvious lies without being a liar."

Ms. Maxwell has stated in her answer after that that her statement was true; that is, plaintiff is a liar. She is thus entitled by Rule 405 to introduce all forms of character evidence, including specific instances of conduct, opinion, and reputation.

What does that evidence look like? Plaintiff's mother described her as a liar, plaintiff's fiance described her as a liar, plaintiff's employer from 2002 described her as a liar.

Your Honor, I would like to start with the first one that plaintiff started with, and that is motion in limine 2, which is Bill Clinton being on the island.

Ms. Maxwell is going to testify at this trial, and she's going to testify regarding the obvious lies that plaintiff told her. One story that plaintiff has told is that Ms. Maxwell was on the island with Bill Clinton and herself at a dinner party. If I may approach, your Honor? I have three exhibits. Two for now.

THE COURT: I think in duplicate, to the extent that I think.

MS. MENNINGER: I'd like to first direct the Court's attention to the news article by --

THE COURT: I've read it.

MS. MENNINGER: -- Sharon Churcher.

THE COURT: Yes, I've read it.

MS. MENNINGER: Okay. It's the one in which Ms. Giuffre, on March 5th, 2011, gave a long and lengthy interview to Sharon Churcher describing her experience on the island with Bill Clinton, with Al Gore, with Al Gore's wife, with all kinds of famous people. And the island event featured large and media coverage. If you notice the date of that article, your Honor, it's March 5th, 2011.

The next document I provided is a press statement issued by Ghislaine Maxwell on March 10th, 2011, so five days later, in which she writes, care of her attorneys, "Ghislaine Maxwell denies the various allegations about her that have appeared recently in the media. These allegations are all entirely false."

Your Honor, the last document I would like to direct your attention to -- by the way, after Ms. Maxwell published this press release, Virginia Roberts did not sue her, she did not claim that she had been emotionally distressed or injured by being called, essentially, a liar in this particular press release. And also, with respect to the Bill Clinton article, your Honor, the evidence at trial will show a substantial number of emails between Virginia Roberts and Ms. Churcher contemporaneous with this article. In none of them does she say, 'You got it wrong. I never saw Ghislaine Maxwell on a helicopter with Bill Clinton. I never said that to you,' she did none of that.

So your Honor, the last document, and it really, I think, actually helps clarify the question your Honor raised when you came out to court this morning, is an email. It's an email from Ghislaine Maxwell to Alan Dershowitz, January 6, 2015, and it has a document attached called "Four Press Complaints".

Your Honor will notice that this document is not marked confidential, it was produced by Ms. Maxwell over a year ago, it is marked Ghislaine Maxwell 0006, and it's a communication between herself and Alan Dershowitz, someone with whom she does not have a joint defense agreement, and that's why she produced this email.

Your Honor, this email, as you can tell from the date, was sent four days after the allegedly defamatory statement at issue. It reflects Ms. Maxwell's dossier of all of the statements from the papers that have been shown to be completely untrue or show inconsistency in her story. Each article is listed so you can find that link that references the lies are inconsistencies.

Your Honor, if you look at this document that was sent just a few days after the January 2nd email, and you turn to page 3, which is actually the attached document, "Four Press

Complaints", because Ms. Maxwell says she's preparing a press complaint in the UK, in other words a legal action, the third page, your Honor, is the document that was attached that was produced over a year ago.

How this document reads at the top, "Drafted by Ms. Maxwell. I have copied direct lines and quotes from articles, and my comments are in orange after the quote. The relevant article that the quotes came from is listed below the last quote. Below, I think, are some of the irrefutable contradictions and interesting additional details that can be used in the letter to the mail and in the following press complaints. In addition, this article on Rothstein you may find helpful.

"What is the number one lie that Ms. Maxwell points to? Number 1. Bill Clinton identified in lawsuit against his former friend and pedophile Jeffrey Epstein who had regular orgies."

And then Ms. Maxwell's commentary directly afterwards, in a quotation, "Huge problem is that Clinton never came to the island."

Your Honor, in plaintiff's response -- excuse me -- reply brief, they claim Ms. Maxwell had no knowledge in early January, 2015 that Bill Clinton had never been to the island. Obviously, she had knowledge of that because she was claimed to have been there with him and claimed to have flown on a helicopter with him by plaintiff in her Sharon Churcher published articles.

And here, in January of 2015, Ms. Maxwell is saying he was never on the island. It doesn't depend on Louie Freeh or anybody else. That's obviously -- in this particular email, your Honor, she's cataloged all of the changed stories of Virginia Roberts, all of the lies Virginia Roberts has told, all of the different news articles in which those lies were told, and said that this is going to be the basis of her press complaint in the UK.

Likewise, on the next page, your Honor, GM009, at the bottom, again, she specifically refutes the claims about Bill Clinton being on the island and says, "He was never there." Right after that, she says, "Virginia discussed that Al Gore and his wife Tipper were also guests on the island." And Ms. Maxwell writes, "They have also never been on the island, and I don't believe they even know Jeffrey Epstein."

So when the jury is asked to consider what Ms. Maxwell meant when she issued, through her attorney and her press agent, the January 2nd, 2015 statement, we have a contemporaneous document drafted by her that was produced in discovery a year ago. None of it refers to the Jane Doe 102 complaint, none of it refers to the CVRA joinder motion. None of it. It refers simply to press allegations that have been floating around about her and about her involvement with

Jeffrey Epstein and Virginia Roberts.

Plaintiff's counsel has said statements made in the newspaper articles are hearsay. That is often true, but when it's plaintiff's statement in a news article, it's called a party admission.

Plaintiff complains that she didn't have the opportunity to depose President Clinton. Your Honor, plaintiff's counsel sought to depose President Clinton in their reply brief at the end of June, 2016, about a week before discovery was to close. They didn't even mention it in their opening brief, they raised it in docket number 211.

In that request, which I didn't have an opportunity to object to because it came in reply, she said she wanted to depose him to, "establish his close personal relationship with Epstein", she said nothing about wanting to see whether he had been on the island, whether he flew in a helicopter, or anything like that.

With regard to Louie Freeh, your Honor, we disclosed him as a witness in our Rule 26 disclosures last March -- excuse me -- February of 2016. Plaintiff made no effort to try to depose him, made no effort to find out his basis of knowledge. We produced in discovery his report in which he submitted a FOIA request.

Yesterday, you will recall Ms. McCawley testifying about how she, herself, issued a FOIA request and got in response an FBI 302 motion -- excuse me -- statement of -- she claims is authentic, but she doesn't know how it was redacted, doesn't explain how it's redacted, but she wants to admit that into evidence.

We are actually offering to put on the stand the person who submitted the FOIA request to explain what was requested and what was received. That is not expert testimony, your Honor, that's chain of custody.

With regard to motion in limine number 5, evidence of denials by Prince Andrew and Buckingham Palace. Again, your Honor, in a defamation case -- and I'm now quoting from plaintiff's treatise that they cited throughout their response and their reply -- excuse me -- "In defamation cases, defendants can also prove that other liables and rumors about the claimant are circulating, at least if they are widespread, to demonstrate that it is not what the defendant said about the plaintiff that causes her reputation to suffer but what others said."

Plaintiff also cites Sack of Defamation. He supports our position, your Honor. Here, we have a statement by Buckingham Palace that was issued on the internet and widely circulated. There is also a videotape of Prince Andrew denying Virginia Roberts' claims. Both of those were far more circulated than anything Ms. Maxwell said, as evidenced by the fact that plaintiff can't even find Ms. Maxwell's statement on the internet anywhere quoted in whole.

Also, Alan Dershowitz widely circulated his denials of plaintiff's claims. He was on Good Morning America, he was on CNN's Nancy Grace Show, he was on Fox News. All of those places he called Virginia Roberts a liar, and a serial liar, and other things.

We are entitled, your Honor, both through cross examination of plaintiff as well as cross examination of her experts, to challenge whether or not anything said by Ms. Maxwell caused damage to her reputation or whether other people calling her a liar on national news and international news is, in fact, the cause of any damage to her reputation.

She is the one, of course, who has put her reputation at issue. Having the Duke of York and Buckingham Palace issue denials is not hearsay, your Honor, it is offered for the fact that the denial was widely circulated and very likely contributed to people considering plaintiff to be a liar.

Motion in limine number 6, plaintiff's sexual history and reputation. This salient point, your Honor, of course, again, under 405(b), is that once you have put your reputation for being a liar in question, then other specific instances of false claims become highly relevant and probative of your character for truthfulness, particularly with regard to sexual assault and sexual abuse.

Furthermore, your Honor, plaintiff is the one who's claiming she has damages of post-traumatic stress disorder, and she is the one who is going to call to the stand her psychiatrist to talk about that patient, and she is the one that gave him evidence about these other acts to him and on which he has relied in reaching his conclusions. It is impossible for us to not be able to cross examine her expert about preexisting PTSD caused by incidents and events unrelated to Ms. Maxwell.

Motion in limine number 7, whether or not Ms. Giuffre can be called a prostitute. Your Honor, no one in this case, no counsel, nobody that I'm aware of involved with the litigation has referred to Virginia Giuffre as a slut. That is something that plaintiff's counsel has brought up, and you will notice there is absolutely no cite in any record, in any document referring to her as such.

What has come up, your Honor, are internet sites in which Ms. Giuffre has been called all kinds of things that are unrelated to Ms. Maxwell, that do not cite Ms. Maxwell. For example, her friends gave interviews to the press in which they described -- and this is attached as my Exhibit L -- described Virginia Giuffre as "a money hungry sex kitten who enjoyed her lavish lifestyle". We cannot talk about plaintiff's reputation on the internet without talking about what is out there on the internet. We cannot cross examine her or cross examine her experts about what her reputation is if we can't ask about these other things that are circulating about her that have nothing to do with Ms. Maxwell.

Mr. Cassell referred to our expert Phillip Esplin, Dr. Esplin, and saying that he agreed not to refer to Virginia Roberts as a prostitute. Your Honor, that came up in the context of a cross examination in which he said he has no idea whether any of her claims are credible or not. He does not believe it's within the province of the psychiatrist to be making credibility determinations. So he was not in any way suggesting, in fact he testified for hours to the contrary, that he knows whether her claims of being a prostitute are true or not true, and he agreed not to talk about.

The only context in which I think this comes up, your Honor, are witnesses or people on the internet who have made disparaging remarks about the plaintiff that have to be the subject of her reputation and her request for damages that she says are related to Ms. Maxwell.

Plaintiff's drug abuse, motion in limine number 8. They have conceded, as they must, that the period of time about which Ms. Giuffre is testifying is fair game for her discussion of all of her illegal drug use. And it wasn't just prescription drugs, she has testified that she was on a number of different drugs at the time, and that because of those drugs, her memory of events from 2000 are, quote/unquote, foggy. And she says that's one of the reasons she can't remember the names of the foreign presidents that she was trafficked to, and these other famous people, because she was taking so many drugs she just can't remember.

Obviously, your Honor, a witness' ability to perceive and recall and relate events that happened a long time ago that were affected by drug use need to be brought to light before the jury.

The second issue, your Honor, relates to the use of prescription medication. What you heard plaintiff say is they would like to introduce evidence that she's taking prescription drugs properly, but they want to exclude us from cross examining her about that to see whether or not she was taking prescription drugs improperly. That's called cross examination, your Honor.

Her use of prescription drugs has been well-documented in her doctor's records, and she has made false statements to her doctors regarding her need for prescription drugs. She's gone from one doctor to the next, telling one that she hasn't taken any Valium for years, and then the next one -- and then we have the records showing that that's just not true. She's told doctors that she was stressed out about a big litigation in New York, she told a doctor that in the year 2014, this lawsuit wasn't filed until 2015, so she's made statements to doctors that are inaccurate.

Your Honor, her statements reflected in her medical records may or may not be admissible depending on what she says on the stand, but they are her statements and they are, therefore, potentially admissible as admissions of a party opponent under 801(d)(2).

Moreover, her doctor is the one who wants to testify about her need for medications going forward, and he has been the one who's talked about her previous use of medications. Her Colorado doctor testified that she had misled him and not fully disclosed her need for prescription medications, and there's also the question about whether or not, if she opens the door and says she's properly used medications for post-traumatic stress disorder, then we should be able to examine her, not only with respect to that, but her other use of prescription and illegal drugs.

And your Honor, I think it is inappropriately limiting to say we can only talk about her use of drugs during the period of '99 to 2002 because any drug use that she has used in the meantime can go to establish whether or not she truly had post-traumatic stress disorder or any other mental health disorder.

She has filed a lawsuit asking for $30 million in emotional distress, pain and suffering, and her doctor is going to testify that she needs medications as a part of managing that pain and stress and emotional distress. If she's been using drugs in the interim that may affect her memory, if she's using drugs now that may affect her memory, or if she's inappropriately used drugs in the meantime, all of that would go to whether or not she truly has the emotional distress that she claims.

Motion in limine 9, plaintiff's criminal history. If I understand plaintiff's argument, they do not want her to be cross examined either under 608(b) or 405(b) with regard to a specific instance of dishonesty; that is, her theft from her employer.

There are legions of cases, your Honor, that find theft to be a crime of dishonesty and admissible for proof of character of dishonesty.

Not only, your Honor, did she get charged by the authorities in Florida with this crime of theft from her employer, an arrest warrant was issued for her, that arrest warrant was outstanding at the time she, quote/unquote, fled to Thailand. That arrest warrant remained outstanding until the year, I think 2009 or 2010, when it was quashed. Plaintiff failed to come back to this country during that entire time. It got quashed because it had been such a long passage of time.

THE COURT: Who was the employer?

MS. MENNINGER: It was the Roadhouse Grill, your Honor. It was a burger joint. And she was working at that Roadhouse Grill in March of 2002 during the period of time she claims that she was a sex slave. She claimed that she was a sex slave, that she was getting paid wads of cash, thousands of dollars by Jeffrey Epstein, and this was happening 24/7. And we asked in discovery, and we got a bunch of records, not only of her working at the Roadhouse Grill, but also of her working at a bunch of other restaurants, at a veterinarian's office, all kinds of things during the period of time that she says she was a -- what is commonly known as a sex slave, is how she described it in her papers.

Your Honor, she compounded the lie about the theft because she wrote a book manuscript, as you know. And in that book manuscript, she describes that it was not her who took the money from the tip jar, it was her boyfriend, Tony Figueroa, and that's also what she testified during her deposition.

She said, for example, that she didn't commit the theft, that he came in at the end of her shift, and while she wasn't looking, he's the one that took the tips.

Well, we deposed Tony Figueroa, and Tony Figueroa, your Honor might be surprised to hear, is a gentleman with several felonies to his name, which he gladly recounted on the witness stand on videotape. He talked about all the thefts he has committed, thefts from a video store, he was charged with felonies, he was put on probation for ten years, he recently had gotten out, but he actually denied that he was the one who took the money from the tip jar.

So there's the lie, there's the tip jar theft, then there's the lie about the tip jar theft, and then there is the arrest warrant that was issued that plaintiff left the country for over a decade while that arrest warrant was outstanding.

Your Honor, the fact of police contacts during this timeframe, including this one, go directly to other issues, including whether or not plaintiff was truly the sex slave that she describes. She had an opportunity, because she called the police on numbers of occasions during the relevant time period -- she called them to report a theft, she called them to help with a civil assist getting her out of her apartment, she called them for all kinds of reasons -- and at none of those points of time did she tell the police that she was currently then a, quote/unquote, sex slave.

Your Honor, the Roadhouse Grill also -- the Mail On Sunday is the one who printed a story about the Roadhouse Grill and confronted her aunt who was being interviewed for one of their stories about it. The aunt was in the process of saying what a great niece she had, and then the news asked her about the Roadhouse Grill theft, and she said, "Wow, I didn't even know that she was working in a burger joint." So it goes to her internet reputation.

And finally, your Honor, I think if you look back to that email between our client and Mr. Dershowitz on page GM009, it's one of the lies that our client specifically referred to. She quotes Virginia Giuffre's statement, "Jeffrey bought me jewelry, diamonds were his favorite, and wonderful furniture. He was paying me very well because I'd give him sex whenever he wanted," to which our client responded, "If he was paying her so well, why steal from her burger job in 2002?" So it's within our client's knowledge on January 6, 2015, and that is an additional reason why it should be admitted going to her state of mind or actual malice, as plaintiff likes to call it.

Your Honor, with respect to the school records, the school records are what they are. They explain that she was in school during the entire time she claims that she was a sex slave, it gives her numbers of days of attendance, I don't understand why those records wouldn't be admitted in cross examination of her as to her whereabouts at certain occasions. Plaintiff certainly intends to introduce flight logs to show that she was or wasn't in certain places, so school records show where she was and wasn't on certain dates, and that's important, your Honor.

Moreover, plaintiff is the one who told Sharon Churcher about her own problems with school. She told Sharon Churcher, and Sharon Churcher published with her authorization that she went back to school to get her GED, and she wanted to study for massage. She talked about dropping out of school. Police records reflect the fact that she was a truant during this period of time, that her mother was concerned about her abusing drugs and alcohol. The school records intimately intersect with the entire story that plaintiff has told about being a sex slave in the years 1999 to 2002.

Also, your Honor, they go to damages because plaintiff has claimed that she should be entitled to a certain amount of damages, and her own experts have talked about her being a troubled child. Again, this is something that they told their psychiatric expert, and he relied on finding that she was a troubled child, and then he's made inferences from there about why she should be entitled to certain damages, and I think the school records are a fair game for cross examination of him.

Motion in limine number 11, her bad childhood behavior. Again, your Honor, this is exactly -- plaintiff went in to see the psychiatrist, went in to see hers and our independent medical examiner, and in both cases she described all of her, quote/unquote, bad childhood behavior. So it goes to her damages, your Honor. They want to elicit what they want to elicit and keep us from eliciting anything that would contradict it.

But putting your reputation and your character in issue, as she has in this case, about the time when she was a child is necessarily a part of our cross examination to explain to a jury what her reputation at the time of the acts in question were.

She was a truant, reported to the schools as a truant, reported by her mother to the police, circulated with people in the community out trying to find her, and she was known as such in her community. So to say somehow that we can't talk about her reputation for truth telling, her reputation for honesty at the time she was a child when she claims that she was the victim of sex abuse, is not supported by the law.

Plaintiff also cites to Sack on Defamation, and I believe the cite is 10, Section 5. And your Honor, I think this helps clarify a lot of what our position is in this case.

Sack believes, as we do, that it is entirely appropriate under 405(b) to question a plaintiff who has alleged defamation, whose reputation is an issue about all kinds of bad acts. They have said, just now, that there is just no reason we should be allowed to ask about all these other bad acts.

Sack cites, your Honor, to an Eleventh Circuit case, Schafer vs. Time, Inc. In that case, your Honor, Sack says the Eleventh Circuit found the district court had been correct when it ruled that the defendant, which allegedly accused the plaintiff of being a traitor, "would be permitted to question the plaintiff about a felony conviction, a possible violation of his subsequent parole, convictions for driving under the influence, an arrest for writing a bad check, failure to file tax returns, failure to pay alimony and child support, and evidence concerning plaintiff's efforts to change his name and social security number." In other words, once you put your reputation at issue, all of these specific instances going to your honesty are fair game.

In this case, we have asked plaintiff whether she filed tax returns. She said, "No." Tax fraud is not a private matter, as plaintiff contends, it is a crime. It is a crime of dishonesty.

She likewise put into her complaint that her reputation was injured in her professional capacity as President of Victims Refuse Silence. We inquired whether Victims Refuse Silence was, indeed, a legitimate enterprise. We learned that they had not met their tax obligations and they had not been funded. That is, as your Honor knows, the subject of 702 motions, so I won't repeat it all here.

I will say, however, that both of those issues, failure to file tax returns and tax fraud, are exactly the kinds of evidence permissible under 405(b) when you are attempting to establish the truth of your statement that plaintiff is a liar.

Motion 14, evidence of being a victim of domestic violence. Your Honor, in this case, plaintiff claims $30 million in pain, suffering, and emotional distress. Plaintiff's expert, Dr. Kliman, testified that domestic violence by her husband is likely a cause of exacerbation of her PTSD. He also testified it was a very violent episode and more likely happened more than once. He also testified that she needs additional marital and sexual counseling based on her disinterest in sex, which she claims is caused by the defamatory statement.

Our expert, your Honor, likewise found that the far more likely cause of any dysfunction in her marriage which arose at the time of the domestic violence incident and was more likely the cause of any PTSD pain, suffering, or emotional distress that she was experiencing.

That domestic violence incident happened in early March, 2015, a couple of months after the allegedly defamatory statement, and seven months before plaintiff brought this lawsuit.

The criminal proceedings against her husband also are relevant to her damages, apart from Dr. Kliman's testimony. Her husband was ordered to live away from their home, leaving her to care for her three children alone. He then stopped participating in the court-ordered domestic violence counseling, and he fled the country with an active arrest warrant that remains outstanding to this date from Colorado.

All of these alternative sources of emotional distress for plaintiff should be admitted, as her expert, Dr. Kliman, has testified, in as far as they impact supposed pain, suffering, loss of enjoyment of life.

Motion in limine number 15, any testimony that sex with a 17-year-old girl is, quote/unquote, lawful. Plaintiff is the one who claims she had sex with various people at various places at various times, some when she was 17, some when she was 18, some when she was 19, some in Florida, some in England, some in New York, some in New Mexico. In all of those cases, except Florida, the age of consent is 17.

I don't know what evidence plaintiff is going to introduce about what sex she had, where, with whom, and her age at that time because those sands have shifted dramatically during the course of this litigation. All I can say, your Honor, is, if she tries to introduce evidence that she had sex at a certain place and time and claimed that it was unlawful, your Honor will be duty bound to instruct a jury on what is or isn't lawful in a particular jurisdiction at a particular time in a particular place.

Your Honor, I would submit that motion in limine 16 regarding the medical records, again, is something that depends dramatically on what plaintiff introduces during her case in chief, but there are many statements, as I mentioned earlier, to her doctors which would be admitted as nonhearsay if offered against her as party admission.

There are many statements over the last 15 years that relate to her mental condition, that relate to her medications. Do I anticipate asking about her ferret bite? I do not. Do I anticipate asking about the other things that are listed in her motion in limine? I do not. But I do believe that there are a number of times that she saw doctors, made statements, sought treatment, got medications, all of which are reflected in her medical records and are something that about which she may be cross examined.

She claims her medical records are private. She is the one seeking $30 million in emotional distress, pain and suffering, and I think when you do that, I'm sure her lawyers advised her that her privacy rights with respect to her medical records would no longer be the same as a private individual.

Your Honor, Motion in limine 17, again, the dollar value of the Jane Doe settlement depends entirely on what happens in terms of plaintiff's case in chief and whether any other evidence regarding the Jane Doe 102 litigation comes into evidence, because if it does, then the settlement and the settlement amount may very well become relevant, but I can't say right now how anyone intends to use that at trial, why it would be relevant, and I can't say whether or not the settlement amount would likewise be relevant.

Motion in limine 18, the Cassell-Edwards-Dershowitz litigation and their settlement. It's interesting to note Mr. Cassell to refer to himself in the third person when he was talking about that litigation.

Your Honor, there are a number -- I can count five reasons, at least, that that case is relevant to the facts in this case.

Plaintiff was a witness in that case. She was deposed in that case. She testified under oath in that case, represented by the same counsel that she has here. Her testimony in that case is admissible.

She participated in that case, your Honor, from March of 2015 or so until it settled in or around April of 2016, and she reported to her doctors that it was causing her a significant amount of stress. In fact, shortly before she was deposed in that case she went to a doctor and requested that she get more Valium to help her handle her upcoming deposition.

Dr. Miller, our psychiatrist, found that her participation in that lawsuit as a witness caused her significant stress and explained many of her complained of symptoms, and he said that they were exacerbated by her participation in that litigation.

Third, evidence regarding that lawsuit goes to her reputational damages. Again, your Honor, I refer to the federal evidence treatise relied on by plaintiff. In defamation cases, defendants can also prove other liables and rumors about the claimant are circulating, at least if they are widespread, to demonstrate it is not what the defendant said about the plaintiff that caused her reputation to suffer but what others said.

Your Honor has read the 702 pleadings. Plaintiff's experts have pulled off the internet all kinds of stories that relate to plaintiff and said that those stories are evidence of her damaged reputation. When you look at the stories that actually were pulled off the internet, a substantial number of them relate to the Cassell-Edwards-Dershowitz litigation; what happened in the litigation, statements made by the parties in the litigation, statements made about Virginia Giuffre relevant to that litigation.

If her reputation is damaged by some other litigation that has nothing to do with Ms. Maxwell, Ms. Maxwell can't be responsible for that reputational damage.

THE COURT: What's your explanation of the damage caused to Giuffre by the Dershowitz case?

MS. MENNINGER: I'm sorry?

THE COURT: I understand the testimony part. That's a different kind of thing. But the case itself, how does that damage her reputation?

MS. MENNINGER: It's the press attendant to that case, your Honor.

THE COURT: Okay. So the press attendant.

MS. MENNINGER: There was a lot of press attendant to that case which was, frankly, negative to the plaintiff that had nothing do with Ms. Maxwell's denial. And their experts have relied on that press and claimed that that press somehow supports their claim for damages against Ms. Maxwell, even though she's not mentioned in the particular stories.

THE COURT: But how is that going to figure into damages in our case?

MS. MENNINGER: Your Honor, I think the jury would be instructed here not to hold Ms. Maxwell responsible for any harm to plaintiff's reputation caused by third parties or alternate sources, including stories that were generated by statements made by her own counsel, by Alan Dershowitz, by Prince Andrew, by anyone else.

THE COURT: Well, yes. But what I'm trying to figure out, what about that case was damaging to Giuffre?

MS. MENNINGER: I can't tell you that, your Honor. It's actually plaintiffs who are asking for $1.9 million in reputational cleanup costs, and when you ask them what reputational cleanup costs are you trying to clean up, they point to stories having to do with the Dershowitz litigation. They say her reputation was damaged by that litigation and by the stories related to it, and they want to push all of those stories down on the internet searches. Not stories that relate to Ms. Maxwell, stories that relate to her litigation with -- her lawyer's litigation with Alan Dershowitz.

THE COURT: Okay.

MS. MENNINGER: I don't think that evidence should come in because I don't think it's based on science, but I realize that's not for today.

Likewise, your Honor, her failure to sue Alan

Dershowitz, although he's gone on all of these other shows and called her a liar after she said she had sex with him seven times, goes to her failure to mitigate any of her damages.

Finally, your Honor, there is, as you heard from Mr. Cassell, talking about Cassell lawsuit, a statement issued that that lawsuit was a mistake. Whether her attorneys have made representations, they did so while they were representing plaintiff. This was while Mr. Cassell and Mr. Edwards were both pursuing their own lawsuit and also representing plaintiff in this case. So any statements that they issued that are within the scope of their agency, your Honor, are representations, frankly, made by plaintiff.

With regard to the Judge Marra order, motion in limine 19, your Honor, plaintiff would like to make a lot of arguments now. She's already litigated those points. She lost. She's collaterally estopped from reraising them. And it would be seriously misleading, your Honor, to admit the joinder motion and not inform the jury that a judge found that the allegations contained in that joinder motion were impertinent.

Motion in limine 20, Rebecca Boylan. They said she's not been deposed. She was a disclosed witness. They said she's not going to be a witness. Well, we'll see. Your Honor, I don't think this is the appropriate time to raise this issue. It's not an appropriate motion in limine. I know what the rules of evidence are with regard to hearsay and double hearsay.

That's also true, your Honor, largely with respect to the rest of the motions. They are asking for an advisory opinion from this Court about things that may or may not happen. Your Honor, I just don't see the need to waste more time on it.

There is only one issue, the one raised in 28 where we have presented the possibility that as the party that bears the burden of proof, we would be allowed during closing arguments, for example, to comment on the lack of proof, which is a common closing argument.

If they have control over a party and that party doesn't come and testify, we may, under the appropriate circumstances and with the right foundation, ask for a missing witness instruction, your Honor, but these are all advisory questions at this point.

MS. McCAWLEY: Your Honor, Sigrid McCawley on behalf of the plaintiff. Would the Court like to take a break at this point? I know we've gone for a couple hours. I'm not sure how you'd like to proceed. We're happy to address --

THE COURT: Let's finish.

MS. McCAWLEY: Let's finish. Okay, great. Thank you.

MR. CASSELL: Paul Cassell, your Honor, for Ms. Giuffre.

The defense started with an overview of Rule 405(b), so let meet respond to that overview.

They reference Mueller and Kirkpatrick, a treatise that we think is very instructive on this particular point.

Mueller and Kirkpatrick says, "It is true that in a defamation case there is more latitude to introducing reputational types of evidence. However, it's important to remember, say Mueller and Kirkpatrick, that actual character is not so much the question as reputation."

And it follows that "specific instances of misconduct cannot be proved if they were not generally known because then they would not affect reputation."

They go on to say that, "When a defendant's proof goes to specific instances under 405(b), caution from the judge is in order. Proving misbehavior can, in effect, become a game of character assassination that adds insult to injury which courts can block by carefully considering relevancy issues and the rule against unfair prejudice found in Rule 403." And so it is against that backdrop that the Court should be considering these 405 issues.

What I would like to do is offer three illustrations of what I think is going to be a pervasive flaw in many of the arguments advanced by the defense.

So we heard that, "Your Honor, look under 405(b). The fact that the mother -- plaintiff's mother described her as a liar about using drugs and running away from home, that comes in to show reputation." Let me explain why I believe that argument is fundamentally flawed, and that will, of course, carry over to other illustrations, as well.

The statement to which defense counsel was referring was a statement that Ms. Giuffre's mother made during a deposition as a witness in this case where the only people in the room were the court reporter and the attorneys. The fact that when asked, "What did you think of your daughter 17 years ago? Well, I thought at the time that she was a liar," wasn't something that goes to Ms. Giuffre's reputation because there's no evidence anybody knew about it other than, you know, the mother who is now being deposed in 2016.

Moreover, the question was, "What did you think about the fact that your then 17-year-old child was running away from school? Well, I thought she was lying to me about that." That would go, I guess, to her reputation back in, what, 1999, 2000, 2001, that time period, but of course the damages that are at issue in this case are damages around 2016 and thereabouts when the defamatory statement is released.

So it's hard to see even an argument for the statement of the mom in a deposition going to reputation. I don't know, maybe I'm missing something, maybe there's some marginal relevance that can be distilled out of all of that. But of course then your Honor has to weigh whatever marginal value that has as to reputational issues against the very significant prejudicial effect.

Obviously, this is going to be considered by the jury to think she's a bad kid. They're not going to like Ms. Giuffre, and they're going to hold it against her, not because it has some technical reputational aspect to it, but because it is something that shows she's a bad person. Under 403, the evidence should be excluded.

Let me give you a second illustration of reputational points. They say, "Ah-ha, look. Ms. Giuffre went to Dr. Kliman," and I believe your Honor referred to that as well. And your Honor asked, I think, a very good question, and let me see if I can answer that question.

You said, "Well, why did she disclose all this stuff to Dr. Kliman?" Well, the answer is obvious, she was under instructions from the doctor to tell everything that happened, and of course she told, to the best of her ability, everything that happened. Some of the stuff is going to turn out in a court of law to be relevant, some of this stuff in a court of law is going to turn out to be irrelevant. But that's not the psychiatrist's job to say, 'No, no, no, don't talk about illegal drug use because the prejudicial effect outweighs the probative value,' he just gets a full medical history. And having collected all that information, you know, through Dr. Kliman, or they also have Dr. Miller who did a similar sort of thing. Now once you have all of this vast array of information, then the lawyers present arguments to your Honor and say, 'Wait a minute. Some of the things that are in the report aren't relevant to the case and, in fact, are going to be highly prejudicial for the jury.' That's why we're here this morning asking for some of those things to be excluded.

For example, there are some references -- I won't belabor the point -- but the references that we're making to some of the illegal drug usage and so forth, that's not something we're trying to deploy affirmatively. The good doctor simply listed all of the information that had been recited as part of his report so that the lawyers and the judge can now make a determination.

And the fact that Ms. Giuffre told Dr. Kliman in a confidential psychiatric examination certain things about drug use can't possibly go to her reputation because no one was there who was assessing what kinds of things might be going on.

A similar point can be made about tax fraud. We're told, "Well, your Honor, tax fraud goes to her reputation." I suppose that goes to her reputation with some IRS agent who is looking at a return, but it can't possibly go to a general reputation that is at issue in this case.

And once again, the cases that we cite in our briefs I think make this point clear, there is a vast risk of prejudicial effect to Ms. Giuffre because the jury is going to think, oh, she's a tax cheat, and they're going to hold that against her because they don't like her actions in that particular circumstance as opposed to the merits of the case.

And by the way, we are going to strongly contest that she's a tax cheat, so your Honor is going to have, I guess, competing tax information, and jury instructions on whether personal injury returns have to be reported on your return, all of which is going to deflect the jury's time and attention, not to mention the Court's and counsel's, away from the fundamental issue of did Ms. Maxwell defame Ms. Giuffre. So that's our response to the initial overview regarding 405, and I'm going to turn the time over to my colleague now to dive into some specifics.

MS. McCAWLEY: Thank you, your Honor. I'm going try to keep this very brief and just touch on some of the highlights quickly.

So we were talking initially at the beginning about the issue of various pieces of different witnesses, whether their information would come in, and we hit on the issue -- they brought up the issue of Mr. Freeh, and actually gave you -- told you that he was going to be just somebody who was going to sit on the stand and validate the FOIA response.

Well, very clear from the documents they've produced in this case, if I could hand them up, your Honor, this is the pages that they produced with respect to Mr. Freeh. And you'll see on the first page, he gives his conclusion and he says, "Based on my experience, knowledge, and duties of these protocols in the USS Protective Details of Special Agents, a company escorting Mr. Clinton" -- so he is relying on his expertise as a former FBI head in order to opine on whether or not these records are correct, your Honor.

They disclosed him as a lay witness in this case, not an as an expert witness. We went through a series -- as you know your Honor, you've seen all the expert depositions in this case that we've had. They say, "Well, you could have deposed him as a lay witness."

Your Honor, will remember, we were very limited. We were limited to ten depos. We had to beg, borrow, and steal to get a few more, and we had to be very careful in who we picked and chose with respect to establishing our claims. If we had known, of course, that Mr. Freeh was going to be put on the stand as an expert in this case, we, of course, would have sought his deposition through the expert process.

So, your Honor, I think those documents speak for themselves. They're very clear, that's GMO0526, where he's giving that clear opinion. The letter is sent to Mr. Dershowitz and he signs it, and then it has the relevant attachments. So, your Honor, we firmly believe that that should be kept out of evidence because he was not disclosed properly as an expert in this case.

The other thing I want to point your attention to is another document that they gave you, and I think this document is really telling for what it doesn't say, and that's the email traffic.

Right after -- a few days after she makes the defamatory statement, she's conversing with Alan Dershowitz about this statement. And this is GM0006 through 00015.

What's really interesting about this is nowhere in this statement does she say, 'I didn't participate in this abuse. I didn't know this person. I wasn't around. This didn't happen with JE.' Instead, she picks statements and says things like -- which sound like a jealous girlfriend -- she says, "I called Jeffrey and told him I've fallen madly in love, Virginia says. I was hoping he'd be delighted, but he said, "Have a nice life" and hung up on me." And she puts in parens to Mr. Dershowitz, "Did she want Jeffrey to say no, don't do it, I want to marry you?"

Clearly, she knows -- while during her deposition she claimed to not recollect my client whatsoever, she clearly knows her and this shows that they were together.

It's also interesting, if you look on page 0008, because she's putting in parens individuals, other people that my client was lent out to that they forgot to mention in the list that they give. I mean, what's really telling about this document is what it doesn't say, but it clearly shows she knew my client, she knew what was occurring, and she's simply trying to pick apart nuances in the statement. So, your Honor, I submit that to you for what it doesn't say from Ms. Maxwell since they've provided that to you today.

There are a few more things that I just want to touch on that I think need to be clarified, and that is, with respect to -- there was this mention about newspaper articles, and as you know we've submitted an expert who analyzed through his web analytics, he's the same expert that was in the Anders case who followed that video of the Fox reporter over the internet and tracked that he uses a well-accepted methodology. We've set that forth all in our papers.

But he tracked the specific quoted statements, your Honor. And if they have an issue, if they want to say, oh, they're proposing today that these articles related to the Dershowitz matter, that's subject for cross examination of him if they want, but he has a very clear methodology, and those articles that he tracked were in that manner, your Honor, so I just want to make that point since they raised it. I know we're not discussing the experts in detail today, but I did ask that question.

So your Honor, in just summarizing on those points, I think we made clear in our opening argument why we believe that this shouldn't be subject to a number of mini trials on a variety of these issues, we're hoping to streamline this matter, and that's why we proposed this motion in limine to you in the way that we did.

I'm just going to let my counsel address any final issues.

MS. SCHULTZ: Your Honor, I don't have anything further to say on motion in limine number 6. The defendant has not given any valid reason or justification for introducing any evidence of prior sexual assault that should be excluded for all the reasons in the brief and the oral argument over these two days.

With regard to drugs, there are voluminous medical records presented here. Defendant's counsel has stood up and said there are false statements to doctors and have suggested that Ms. Giuffre is doctor shopping. I'll submit that the records do not reflect that.

Defendant apparently seeks to introduce a jotted down note here or there from medical records, but these are plainly hearsay, and a sentence fragment in the middle of a medical chart is not admissible evidence, it's hearsay. And then, they're certainly not a party admission, they don't even reflect the totality of what the conversation is between patient and doctor.

Also, I would also submit that the prescription records show that they are not doctor shopping to a mass amounts of pills or medication. The prescription records speak for themselves. You can count the number of pills that were prescribed over a period of time, and you'll understand that this is not a situation of someone being a drugee and doctor shopping, something that's in the news a lot these days. So trying to submit it that way is not only irrelevant to this case, but the prejudice greatly outweighs whatever probative value it might be. Ms. Giuffre would not, of course, object to testifying with regard to what current medication she takes, but that's a different subject altogether.

With regard to criminal history, as I mentioned, Ms. Giuffre denied that she stole the money. She said her boyfriend took the money while he was there with her. And defense counsel reminded Court that this victim is a thief. Again, none of this information comes in under the Federal Rules of Evidence. Even the charging document and the warrant are classic hearsay and should be excluded.

With regard to the next one, I'm going to skip ahead to school records. The records don't show that she was in school, as much as defendant seems to think she is. They don't have also what days she attended and what days she doesn't. It doesn't say that she was there on, for example, May 23rd, 2000. What they do show is that there are no courses taken between 1999 and the 2000 school year, and no courses taken during the 2000 to 2001 school years.

Ms. Giuffer's attempt to work and resume school at another school as as a tenth grader in the 2001 to 2002 school year was limited to a portion of the school year starting October 20th, 2001, ending only in March 7th, 2002, which only further substantiates Ms. Giuffre's testimony that at one point she attempted to get away from defendant's abuse, along with -- and Mr. Figueroa testified to the same.

So again, I would also reiterate that her reputation as a child for being a truant or a runaway is not what is at issue in this case. She is a 30-something-year-old woman and did not have a reputation related to her school attendance.

There is also in this case zero evidence of her not-for-profit being a tax fraud. It's not funded and it's in compliance with United States tax rules.

Additionally, Ms. Giuffre has produced volumes of papers of tax returns filed with the Australian government, the country where she has predominantly resided since she was 19 years old. And that's all I'm going to say for that, to keep it brief.

MR. CASSELL: Your Honor, I'm just going to address all of the points that -- I'll just take very few minutes here, with your permission.

So on point number 7 that I addressed, the issue of slut, it seems like we're in agreement that that should be a term that's not used.

The debate was over the term "prostitute". Again, Dr. Esplin, their own expert, you can see in the 702 motions, he concluded that was an inappropriate word.

The only -- let me be clear. If there's some document that has the word "prostitute" in it, we're not suggesting that then it would be -- if that document is in evidence and the use of that word is appropriate and admissible and relevant, we're not saying that that has to be redacted. But the only example they gave is there's some comments in some internet chat room somewhere, we're not sure exactly how they're going to authenticate those, there's no evidence Ms. Giuffre has heard of those, so as you say, we can take that up at the time. But we would ask that defense counsel be instructed, and their witnesses be instructed, not to use that term unless it appears in a particular document.

With regard to item 14, this is the domestic violence issue. And they say, look, it has relevance because it shows an alternative cause of emotional distress damages.

Our position is primarily based on Rule 403. We conceded, I think, that there's some arguable chain of relevance that perhaps could be teased out here, but let's understand, this domestic violence incident took place in March, 2015, and the statement at issue that caused the worldwide reputational damages was launched in January of 2015.

So the relevance here is marginal, and ultimately the question your Honor has to, of course, sort out is the prejudicial effect. There wasn't any response that I heard from defense counsel about a blame the victim mindset that the jury would very well adopt once they heard that Ms. Giuffre's staying with her husband is a victim of domestic violence. So your Honor has in front of it, I think, essentially uncontested evidence, or at least uncontested argument of substantial prejudicial effect that will exist that tips decisively in favor of excluding this, particularly when they get to subjects like criminal proceedings. We're going to then get into what is the scope of the protective order if they live in Australia and things like that. That's far afield from any effect on emotional distress damages.

Item 15 has to do the 17-year-old, 16-year-old, 15-year-old. I think we have agreement from both sides that sex with a 17-year-old is unlawful under the age of consent statute that exists in Florida, and we'll be asking either to cover that through an expert witness or through a jury instruction. But they say, oh, what if she's flown to New Mexico? The age of consent there might be different. And this is where I believe your Honor can take a close look at the expert witness on sex trafficking, the 702 motion is currently pending in front of you, Professor Terry Conan, who is at the Florida State Trafficking Institute, and we've offered him as an expert witness.

If you take a 17-year-old from Florida, fly her to New Mexico for sexual purposes, it makes no difference what the age of consent is at that point because you have a federal sex trafficking crime that has been committed.

The same thing is true if you fly a 17-year-old into London, or if you fly her into New York. All of those are sex trafficking crimes, and Professor Conan is prepared to explain both that particular aspect, I would describe it as a mixed question of fact and law, and also some of the psychological techniques that are used to create the -- I think he refers to them as the invisible chains of sex traffickers.

So we either have a crime in Florida, because she's under the age of consent, or we have a federal or, in all likelihood, state trafficking offense if she's flown to another state.

Which regard to item 18, the Cassell and Edwards litigation, I think your Honor asked some excellent questions on that.

We were told that there are five reasons why Ms. Giuffre's connection to that case has some relevance. The first argument, I guess, is their strongest argument, was that, well, she was a witness in that case. But, of course, that was a confidential deposition, so it couldn't have anything to do with reputational damages or something else.

Let me be clear. Ms. Giuffre made statements when she was deposed, and if they say, ah-hah, you've said X from the witness stand, but last year when you were deposed you said not

X, fair enough, cross examine her about it, inconsistent statement. We're not objecting to that aspect of that.

What we don't want is the lawsuit itself and the circumstances surrounding the lawsuit to be paraded in front of jury. If they simply want to put in a deposition statement to stay it's inconsistent, and that's properly done, of course, that would be appropriate.

Their second point is, she participated for a period of time. I guess she participated if you're subpoenaed as a witness and testified, but that wasn't -- you know, she wasn't a party to the case.

Their third point was that the reputational damages somehow link into what Dershowitz was saying. Again, your Honor already knows our point one is to keep out Mr. Dershowitz from the case, and you'll make a ruling one way or the other on it. If he's kept out of the case then this becomes a moot point. But even if you decide he's in the case, well, okay, fine. Have him testify and do whatever else you think is appropriate. We don't need to hear all about this unrelated lawsuit.

Their fourth point had to do with, I believe, you know, damages suffered by Ms. Giuffre. Your question was, if I'm -- I don't have the transcript in front of me -- I think you said, well, how does the case itself go to damages? And I believe this is a direct quote from Ms. Menninger. "I can't tell you that." So even the defense counsel when given an opportunity to articulate the relevance failed to do so, in our view.

She says -- then her next argument is, well, the plaintiff's experts are using Dershowitz's statements. As you know from the 702 pleadings, no, we're using Maxwell's statements. We're only going to be proving a case about what Maxwell's defamation did to Ms. Giuffre.

And then the last argument was that there was a failure to mitigate damages by suing Dershowitz. Well, your Honor knows, if a person A commits a defamation, you sue A and you get your damages. Then if person B does something, you sort that out in a separate proceeding in a separate way. Sacks and others are very instructive on that.

The last point they made was that, well, look, these statements were going on while Cassell and Edwards were representing her. They've shown simultaneity in time, but not simultaneity in the scope.

It is true that the lawsuit was settled, and I won't refer to myself in the third person. Mr. Edwards and I settled the lawsuit and made certain statements in connection with that, but that was to take care of our own professional reputation and the lawsuit associated with that, it had nothing to do with representing Ms. Giuffre.

I believe I have two left, your Honor, and you've been extremely patient. Let me just take two more minutes to cover point 19. This is Judge Marra's ruling.

They say we want to put it in that she lost. Well, in our view, actually, that was a victory. Our goal was to try to get her into the case, and Judge Marra ruled that she could participate by being a witness.

Now, are we really going to try the implications of Judge Marra's ruling in a pro bono Crime Victims Rights Act organization ruling? He ruled on this, but allowed this other thing. It's highly, first, irrelevant, and obviously, highly prejudicial in the sense that it's going to divert the jury's attention away from the facts at hand here.

And again, Judge Marra only ruled on the first of nine reasons that we offered for putting those allegations in. He said point 1 doesn't work, the others we'll see how things play out.

The litigation is moving forward. I can tell you the government will be responding to our summary judgment motion, I believe on May 15th. We'll be replying on July 15th, so the litigation continues.

The last point that I'll make is Boylan. This is item 20. Remember, Dershowitz is going to say that Boylan says that Ms. Giuffre said certain things. And we were told that, well, maybe she will be a witness.

It's my understanding that Boylan is not on the final pretrial witness list. Maybe during a break I can confirm that. But if she's not on the witness list, we've got double hearsay and it can't come in.

The last point I would leave you with, your Honor, is many of these issues are going to come down to balancing. They're of minimal relevance for the reasons we've explained, very significant prejudice, and we would ask that each of the motions in limine we've asked today be granted.

THE COURT: Thank you. We'll resume at 1:30, and I guess, unless you all think it's been covered, the Maxwell motions. What do you think?

MR. PAGLIUCA: Your Honor, I would --

THE COURT: Would you rather catch your plane?

MR. PAGLIUCA: No. I'm prepared to stay until tomorrow, your Honor. I'm not leaving until tomorrow morning, just in case you need me this afternoon. I'm sure you're thrilled about that.

I think, your Honor, when I went through these, it seems to me that we have dealt with number 679, 716, in connection with 683, 742, and 774. That deals with the Rodriguez, we call it the unauthenticated hearsay document from a suspect source. They call it the black book. I think the Court heard argument about all of that and, in my view, this does not all need to be repeated today.

Yesterday, we talked about the -- I can't remember the name of it, but it was the plaintiff's motion, sort of omnibus related to different acts either under 404(b) or 415.

The plaintiff wanted until 15 days before trial to make whatever showing they wanted. It would make sense -- well, in defendant's 404(b) motion, there are some of those issues, as well. We certainly could argue part of that. The Court may want to defer that to the entirety of when we have whatever the supplement is to that motion yesterday.

Then we also, I believe, dealt with yesterday the issue related to the Jane Doe 102 complaint. We have a competing motion on that. That's 663. It seems to me that was argued yesterday, and we don't need to repeat those arguments, which is the same argument we had yesterday.

So in my view, your Honor, that leaves the bifurcated trial motion, which has been fully briefed, the Kellen and Marcinkova issue, and the police report issue. So by my count, we have those three.

I also have on my calendar that our motion to preclude -- or the plaintiff's motion to preclude calling attorneys as witnesses, which is 685 and 772, and by my calendaring the reply was due yesterday. I think Ms. McCawley has a different version of that, and so frankly, I don't care whether we hear that today or some other time.

So that's my accounting of what we have ripe for argument today, or shouldn't have argument today, as the case may be, your Honor.

(Discussion held off the record)

THE COURT: We'll resume at 1:30.

(Luncheon recess)

(Continued on next page)

AFTERNOON SESSION

1:30 p.m.

THE COURT: Who's up? I think the defense?

MR. PAGLIUCA: Yes, your Honor. I think Ms. Schultz requested that we take up No. 666 at this point, which we're happy to do.

THE COURT: Oh, yes. Yes.

MS. MENNINGER: Your Honor, this motion relates to our request that we exclude evidence barred as a consequence of plaintiff's summary judgment concessions. We asked in argument 4 of our summary judgment motion for partial summary judgment with respect to the oral statement on January 4th to a reporter.

THE COURT: Hold the phone.

MS. MENNINGER: Sure.

THE COURT: Sorry. Needless to say, I'm drowning.

Ah, okay. Okay. Sorry. Yes.

MS. MENNINGER: We asked for partial summary judgment with respect to our client's statement on a New York street that, "I am referring to the statement that we made." As we set forth in our summary judgment brief, this Court's ruling in Adelson v. Harris is directly on point, that a mere reference to another writing that contains defamatory statements does not constitute an actionable repetition or republication. In that case, in Adelson, there was, first, an allegedly defamatory statement and later a press release which said, we stand by everything we said. It's directly on point. Your Honor there held that such republication is not actionable. We set forth that clearly in our argument 4 of the summary judgment motion, and plaintiff, in her response to summary judgment, made absolutely no reference, no response, nothing with respect to that argument. We, therefore, believe that she has conceded the point and we would ask that no evidence regarding that statement be entered in the trial.

We predicted, and we were correct, that having not argued it in response to our summary judgment motion, they would try to use the opportunity of their response to this motion in limine to make substantive arguments. They should not be permitted to do so, your Honor. In any event, their arguments that they have set forth in response --

THE COURT: I'm a little lost. Perhaps totally lost. But the partial summary judgment, that's not been dealt with, or has it?

MS. MENNINGER: It was not part of your Honor's ruling, no.

THE COURT: Tell me the context of the summary judgment.

MS. MENNINGER: Certainly, your Honor. There were a number of things that we believed plaintiff had conceded because they failed to respond to our requests in our summary judgment motion. Your Honor ruled against us on a couple of points, but your Honor was silent with respect to this particular argument, argument No. 4 --

THE COURT: Ah.

MS. MENNINGER: -- in your ruling.

THE COURT: And that was?

MS. MENNINGER: Our plaintiff's statement two days after the --

THE COURT: The one on the street.

MS. MENNINGER: Exactly. That in that statement, our client said, we stand by the statement, or, I am referring to the statement that we made.

THE COURT: Yes, yes, yes. Okay. I'm just trying to figure it out. So in a very nice, polite way, you're telling me I failed to deal with that motion of yours.

MS. MENNINGER: That's correct, your Honor.

THE COURT: So it's still out there.

MS. MENNINGER: Still out there. There was no response by plaintiff to that argument is our point; that in their response to summary judgment, they didn't mention it at all.

THE COURT: Well, that's probably where I missed it.

MS. MENNINGER: Exactly. So I think the fact that they failed to respond to it then, as your Honor has held in other cases, has consequences; namely, it's a conceded point.

And so their failure to respond --

THE COURT: What was the point, that that was not another defamation?

MS. MENNINGER: Exactly. In the case of Adelson v. Harris, just like in this case, there was one allegedly defamatory statement afterwards. There was a press release issued that stated, we stand by everything we said. Those facts are very similar to ours, where there was a written statement issued and then our client, did she or did she not republish that, is that a separate defamatory event.

THE COURT: Okay. Thank you very much. Now, at least in this little small part of this dispute, I know where I am. Okay. Thanks.

MS. MENNINGER: And the Adelson case, your Honor, controls and says that referring back to a statement, such as a previous press release, is not actionable, and summary judgment has been granted on such alleged republications. So now, in this motion in limine, is not the time to be dealing with the substantive point that plaintiff basically conceded during summary judgment.

Thank you.

MS. SCHULTZ: Hi, your Honor. Meredith Schultz, counsel for Ms. Giuffre.

This motion in limine has already been decided by this Court's summary judgment order, thereby rendering it moot in its entirety. Accordingly it should be summarily denied as moot.

This motion should also be denied because it advances the exact same arguments defendant advanced in her summary judgment motion. She is seeking rehearing on her summary judgment motion, dressed up as a motion in limine. Many courts in this district have summarily denied motions in limine that seek to relitigate arguments from summary judgment, and I have listed six such cases on pages 7 and 8 of our response in opposition. You ordered nine defendant's motions for summary judgment. This Court rejects the argument that she should have partial summary judgment on the January 4th statement. The last sentence of that order states, "Because of the existence of triable issues of material fact rather than opinion and because the prelitigation privilege is inapplicable, the motion for summary judgment is denied." Defendant's reiteration of her defamatory press release confirming it two days later is something that this Court did not rule that that is not actionable. So she's seeking rehearing.

Also importantly, your Honor, Ms. Giuffre opposed summary judgment on defendant's defamation in its entirety. She opposed the motion for summary judgment in its entirety, and this statement, as part and parcel of defendant's defamation and part and parcel of defendant's motion for summary judgment.

THE COURT: Well, what do you say about the case that's been cited?

MS. SCHULTZ: Well, about Adelson? I would say that it's factually distinguished because here she is two days later reiterating her defamatory statement. And I would also direct you to the case in my brief, Wheelings v. Iacuone.

THE COURT: Let me just get the time frame right.

MS. SCHULTZ: Sure.

THE COURT: The initial statement is January, and when is this?

MS. SCHULTZ: So, your Honor, the email that went to the media, it was first issued on January 2, 2015; it was published on January 3, 2015; and the statement took place the next day, on January 4, 2015.

THE COURT: Okay.

MS. SCHULTZ: A recent opinion in this district, the Wheelings case, makes it clear that you can't reargue summary judgment on a motion in limine and also makes it clear that you can't say, oh, because one person --

THE COURT: The issue is, was the second statement defamatory?

MS. SCHULTZ: I think that was an issue at summary judgment that Ms. Giuffre opposed in its entirety, and I think that's already been resolved.

THE COURT: How?

MS. SCHULTZ: Because it was denied, your Honor.

THE COURT: The motion was -- well, okay.

MS. SCHULTZ: Your Honor, even assuming, arguendo, that this is not cause of action, it should still be admitted as evidence. This is a motion in limine to exclude it as evidence.

THE COURT: All right. Assume for the moment that the case that counsel has given me is accurate, and then why would it get in? What does it add?

MS. SCHULTZ: It adds state of mind, defendant's state of mind in issuing --

THE COURT: The state of mind didn't change in two days.

MS. SCHULTZ: Right. It says that she stood by her statement and did not retract it.

THE COURT: Well, she certainly is standing by it today.

MS. SCHULTZ: And your Honor, it shows one other thing. Throughout this litigation defendant has tried to argue that defendant had nothing to do with the defamatory statements. In fact, just yesterday defendant's counsel was saying that it was issued by her lawyer and by her press agent. It's her statement, and in this video she is personally owning it, and she can't hide behind her lawyer or her press agent.

THE COURT: Oh, okay, okay, okay.

MS. SCHULTZ: So it goes to a material argument that defendants have advanced.

THE COURT: So to the extent that becomes an issue, and that's a whole other thing, as to whether she intended the statement, I can see that.

Okay. All right. Anything else?

MS. SCHULTZ: Yes. I'm just going to say that this is a motion in limine and there are no evidentiary problems with this piece of evidence. This is the defendant herself on camera, this is not hearsay, and there's no Federal Rule of Evidence that should exclude this.

THE COURT: Okay. Do you want to add anything?

MS. MENNINGER: No, thank you, your Honor.

THE COURT: Okay. Thank you.

What else?

MR. PAGLIUCA: Your Honor, we can take up the bifurcation issue that's presented in 662 and 766, and then there was a reply filed last evening.

THE COURT: Yes.

MR. PAGLIUCA: Your Honor, I think -- well, I don't think. The law is very clear on this issue in this circuit. There is a --

THE COURT: Well, I think we can shorthand this.

MR. PAGLIUCA: Yes.

THE COURT: Yes, yes. Maxwell's money doesn't come in on the liability case. That's your position.

MR. PAGLIUCA: That is my position, your Honor.

THE COURT: I think that's correct. Tell me why that's wrong.

MR. CASSELL: All right. Thank you, your Honor.

The problem, as usual, is, yeah, her net worth doesn't come in at the liability stage, but I think the defendant is trying to get the camel's nose under the tent and say, oh, if financial issues don't come in, then you can't --

THE COURT: Well, I don't know what financial issues you mean. He's saying no introduction of her finances -- that is, how much money she's got or where it comes from or anything like that comes in.

MR. CASSELL: As I understand the motion, it's with reference to her "financial status."

THE COURT: Well, I just told you what I think that means.

MR. CASSELL: Right. And I think, with the construction that you were just giving, I'm not sure that we're concerned about this, but let me be clear.

THE COURT: What would you like to present?

MR. CASSELL: There were three or so things we would like to present. If your Honor rules that Ms. Giuffre's tax compliance can go to her credibility, then we would like to be able to reciprocally say, all right, then Ms. Maxwell's tax compliance, if there is questions about that, could be introduced. We think that there shouldn't be tax compliance issues coming in with regard to Ms. Giuffre. They've said, well, that goes to her credibility. What's good for Ms. Giuffre should be good for the defendant. But again, to be clear, we don't want to turn this into a tax trial; we want it to be a defamation trial. But they've made an argument, tax issues are relevant to Ms. Giuffre. Then we would like to have a parallel opportunity then with respect to Ms. Maxwell.

The other thing we have, for example, we're alleging there's a organization that is paying girls to give sex to Epstein. And who's making the payments? Well, Ms. Maxwell, among others. We have her on bank records, at the Epstein mansion, where she's in charge of the --

THE COURT: Well, that's different.

MR. CASSELL: Yes, and that's exactly --

THE COURT: That's not her financial status.

MR. CASSELL: Right. So that's not her financial status. For example, we want to show those kinds of payments. We also want to show more broadly that Ms. Giuffre and the other girls were not coming into a bungalow in the middle of Hoboken or whatever. They were coming into a mansion in one of the most --

THE COURT: Well, that's got nothing to do with her financial status.

MR. CASSELL: All right. Well, we thought, when we filed our response, they continued to oppose it. If they had just stipulated, you know, I wouldn't be taking your Honor's time.

But this is where I think they're taking a narrow uncontested principle, that her net worth doesn't come in, and are going to try to use it to exclude evidence that Ms. Maxwell is making payments to the girls, that this mansion is a very --

THE COURT: Well, okay. I don't think so.

MR. CASSELL: Let me just make sure that I have on the table the things that we want to introduce.

For example, Mr. Epstein purchased a helicopter for Ms. Maxwell, and they might say, oh, well, that shows financial status or something. We think that shows a very close connection.

Well, the last one and perhaps the most controversial one in connection with this case is the townhouse. It is our belief that a --

THE COURT: Well, wait a minute. What's the basis of your belief?

MR. CASSELL: The basis for our belief is, I believe they've conceded that there was a sale of a $17 million townhouse in 2016.

THE COURT: Okay. Is it the defendant's townhouse?

MR. CASSELL: Yes. So the question is --

THE COURT: So that's part of her net worth. I mean, that's part of the financial part. I don't see how that gets into the liability case.

MR. CASSELL: Right. So Epstein was the one who provided the loan to get that --

THE COURT: Says who?

MR. CASSELL: Ms. McCawley, who took Maxwell's deposition, is advising me that during Maxwell's deposition, she conceded that.

THE COURT: Well, all right. Okay. But that isn't financial information. That's the relationship between Maxwell and Epstein.

MR. CASSELL: Right. I think you and I are on the same page. My concern is that we may, as on other issues, may not be on the same page with the defendant.

THE COURT: I don't think so, but maybe I'm wrong.

MR. CASSELL: There's one other point, if I can just be heard on the townhouse. The townhouse was sold at a time shortly after Ms. Maxwell is discussing with her advisers, hey, I could get sued for libel. We believe that transferring $17 million outside the jurisdiction of your Honor --

THE COURT: Tell me about that after you've got a verdict.

MR. CASSELL: All right. But we want to introduce it during the trial to show consciousness of guilt, that she is transferring assets away from the jurisdiction of the court because --

THE COURT: She sold the house.

MR. CASSELL: Right. After she wrote an email that said, hey, I could get --

THE COURT: You can't argue, I don't think, that that's an admission.

MR. CASSELL: We believe it goes to consciousness of guilt, and we've cited a case in our brief to that effect.

But I think if you have a difficulty with that small piece of our argument, I mean, I think the rest of it is really, you know, the meat and potatoes here, so --

THE COURT: Okay. Yes.

MR. PAGLIUCA: Your Honor, I'm going to not try to belabor this, but I have to respond to some of the points, just so that the record is clear.

The language that we proposed to the Court about the financial status comes from the very cases that are in the Second Circuit, and that's the words that the Second Circuit and district courts in the Southern District use. And I quote from Tillery: No evidence as to defendant's financial status may be presented to the jury during the first phase of the trial by either of the parties to this action. And the Second Circuit says that that's the preferred method. Mr. Cassell, I think, knowing that he's losing this battle, then tries to change it.

But first of all, let's talk about this consciousness of guilt issue. And not only the supposed facts behind this but the law that they cite. There are references to a New York Post article that is the --

THE COURT: Well, that's no good, obviously.

MR. PAGLIUCA: Of course. And then there's a reference to Radar Online. That's their entire evidentiary basis for the proffer that they just made to you, your Honor, about this townhome. It doesn't fly. And I don't need to spend --

THE COURT: Well, wait a minute. There was a little bit more. There was Maxwell saying she got a loan, they say, from Epstein to buy the house.

MR. PAGLIUCA: What she said, your Honor -- and I wrote it down because I looked at the deposition transcript last night.

First of all, I think it's important for this discussion, we allowed questions relating to anything financial with Mr. Epstein. So the one instruction that I gave to Ms. Maxwell during this deposition was, anything they ask you about Epstein is fine. I'm not going to let you talk about your own personal financial information because it's not discoverable at this point. And so they had fair opportunity to ask her questions. They asked her questions about the townhome, and she said part of it was a loan from Mr. Epstein that had been paid back, and that's going to be years ago, before any of the defamatory allegations arose in this case. That's my understanding of the factual basis here.

So we can I think deal with that particular issue, you know, if and when it comes up, but what I'm saying to the Court -- I mean, the Court and I are on the same page -- the sale of the townhome, the amount of the sale of the townhome, you know, what did or didn't happen to the money from the sale of the townhome, those are all off limits during the liability phase of the trial.

THE COURT: Well, correct me if I'm wrong. We don't have any evidence as to what happened to the proceeds of the sale.

MR. PAGLIUCA: We don't.

THE COURT: Oh, okay.

MR. PAGLIUCA: There is none.

THE COURT: Okay.

MR. PAGLIUCA: And the notion that this money went outside of the jurisdiction of the court is pure fiction. Frankly, unless it went to some country that I'm unfamiliar with, I think the jurisdiction of this court extends pretty far.

THE COURT: I think that's for another day.

MR. PAGLIUCA: Right.

The last point I want to make, your Honor, on this issue of consciousness of guilt relates to the one case that they cite for the proposition that there is some ability to have a consciousness of guilt theory in a civil case. They cite a Second Circuit criminal case in which the defendant was a man named Amuso. This is at 21 F.3d 1251, and it's a 1994 case. Mr. Amuso was a leader in the Lucchese crime family who, over a course of time, ordered 14 murders and then absconded from the jurisdiction during the trial of a number of co-defendants. And it was called "The Windows" case here in New York, and you may remember it, your Honor, because it was the Lucchese crime family that was controlling the replacement window unions in the city of New York. So Mr. Amuso goes to trial, and the government requested and received an instruction to the jury that said not only his flight was consciousness of guilt but the length of the absence of his flight was consciousness of guilt. And in fact, the Second Circuit reversed that instruction and disapproved it in that criminal case but didn't reverse his conviction because the evidence of guilt was overwhelming. So the one case that they cite for this proposition in fact is inapposite to the position that they're taking here today.

So I think your Honor and I are indeed on the same page here, and I'd ask that the Court simply apply the law in Tillery.

Oh, Ms. Menninger reminds me, your Honor -- and I think the Court and I are on the same page on this as well -- the tax argument made by Mr. Cassell. Indeed, Ms. Maxwell and the plaintiff are not on the same footing in this case with regard to who put their reputation at issue, who is claiming emotional distress damages, and plaintiffs are in a much different position than defendants when it comes to cross-examinations about these issues, particularly in defamation cases, because as Ms. Menninger pointed out earlier, under Rule 405, everything that impacts the plaintiff's reputation in the community, including the failure to follow laws, is the subject of cross-examination. So the argument that what is good for the goose is good for the gander in a defamation case simply doesn't apply when you're talking about damage issues and reputational issues.

Thank you, your Honor.

MR. CASSELL: Could I just have 15 seconds, your Honor?

THE COURT: No.

MR. CASSELL: All right. Thanks.

THE COURT: Next.

MR. PAGLIUCA: Your Honor, we could next take up the issue relating to the police reports which I have as defendant's motion in limine to exclude police reports and other inadmissible hearsay at 677, response at 747, and then reply was also filed yesterday.

THE COURT: Okay. Yes.

MR. PAGLIUCA: Your Honor, these reports, that are loosely described as police reports, encompass a one-year purported investigation by the Palm Beach Police Department into the affairs of Mr. Epstein roughly beginning I think in 2005 and going through 2006. The detective initially assigned to the case was a woman named Michelle Pagan, and then Detective Recarey took over the investigation from Ms. Pagan. There were a number of things, according to the reports -- although we don't really have any actual witness testimony, with current knowledge. The police did a number of things. They surveiled Epstein's house, they did trash pulls, and ultimately they executed a search warrant at Mr. Epstein's house. And that's sort of the totality of the investigation.

I give you that as the backdrop, your Honor, because then next what seems to happen is very curious, in my experience, and was testified to by Detective Recarey. The police get crossways with the state attorney's office in Florida, and there is a complete distrust between the two agencies. As a result of that -- and there's a bunch of in-fighting that goes on between these two agencies. The police make the decision to, in some fashion, turn over everything that they have to the FBI. And as best I can figure it out, the FBI issued a grand jury subpoena, or the U.S.

Attorney's Office, in the Southern District of Florida, issued a grand jury subpoena for the entirety of the Palm Beach Police Department's evidence relating to the Epstein investigation. So as we sit here today and indeed for the last ten years since 2006, the Palm Beach Police Department has not been the custodian of any of this evidence.

And so that's the factual backdrop to then what becomes continuing problems with the types of evidence that I anticipate the plaintiffs are going to try to introduce in this case. The first is these police reports themselves. And that is about 87 or 88 pages of documents, depending on which iteration of these police reports someone is looking at. That essentially runs through the course of the investigation. And I'm sure things that your Honor's seen before, you know, police officer does something, they put it down on a piece of paper, somebody puts it into a system, and then that's where it goes. But the problem here, fundamentally, with these police reports --

THE COURT: Let me back up just a moment.

MR. PAGLIUCA: Yes, sir.

THE COURT: How are these going to be entered into evidence? They're not self authenticating.

MR. PAGLIUCA: They're not.

THE COURT: So how are they going to be presented?

MR. PAGLIUCA: Good question, your Honor.

MS. McCAWLEY: Do you want me to address that, your Honor? I mean, it's our evidence that we're trying to get in. Or do you want me to wait?

THE COURT: Well, you don't know. The defense doesn't know.

MR. PAGLIUCA: There is no way. There is no way to present these documents, your Honor.

THE COURT: Yes. Okay. All right. Because there's no DOJ witness listed.

MR. PAGLIUCA: There is no record custodian at all for these documents. Detective Recarey in his deposition -- and you have this, the relevant answers to these questions -- acknowledged that they don't have any of this evidence. And so that's going to be, you know -- you have seen, in multiple filings from the plaintiffs, they attach excerpted documents containing what they say are phone messages secured from the trash pulls. So that would be an example of evidence for which there is no record custodian. Frankly, I don't know who the source of any of that information is. This is yet another piece of information that has appeared, I'm presuming through Mr. Edwards getting it somehow, you know, in relation to some other case and then it appears in discovery in this case. And what it looks like is, you know, a number of, you know, what they say are photocopies of message pads from Epstein's trash. But there is no person who will say, this particular piece of paper came from Epstein's trash in the first instance. There is no person that will say, we kept these documents and we have the originals and you can come look at them and you can test them and feel them. There is no person that will say any of that because it went to the grand jury and presumably, under Rule 60, it's never coming out of the grand jury again.

So the other point about these message pads is, I don't to this day know whether that's just hand-picked portions of whatever plaintiff's counsel got years ago or it's the entirety of what, you know, Palm Beach did or didn't do, but when I asked Detective Recarey those questions in his deposition, he said, I can't tell you if that's everything. I just got handed this stuff by plaintiff's counsel, you know, in the course of this deposition, and that's all I can tell you about it. So that's another piece of this that's problematic for the plaintiffs.

There's another issue that relates to a transcript of a witness, Ms. Hall, and the plaintiffs, I think, want to try to introduce that transcript or, alternately, what they say is an audio recording of an interview with her, and I'm not sure which they are trying to introduce, but there are problems either way. The transcript, what I will call the Hall transcript, was in fact not prepared by the Palm Beach Police Department. According to Detective Recarey, he had never seen it before, during his deposition, and he surmised that it had been prepared by the state's attorney's office but he didn't know. So what happens then with this transcript is, there is an attempt at a deposition of Ms. Hall in Miami, this summer, and Ms. Hall comes in and she sits down, and she doesn't want to answer any questions about anything, and she says, I don't remember anything about any of this. Her lawyer says, she doesn't remember anything about any of this and she spent the last ten years forgetting about all of this and she's not going to remember anything about this. Mr. Edwards then puts the transcript in front of her and she doesn't look at it. She doesn't even look at the transcript. She doesn't turn the page. She doesn't read any of it. There's a question asked at some point later: Isn't it true that everything you said in the police department was true? And then shortly after that, the deposition ends. And they're trying to say that that is a sufficient factual basis and an evidentiary basis for the admission of this transcript, which is, you know, unsponsored hearsay.

There's a similar problem with this recording because Ms. Hall never listened to the recording, never authenticated the recording. And so there's no evidence whatsoever that it's Ms. Hall's statement or that it was subject to any cross-examination.

So to try to get around all of these evidentiary problems, now what's being advanced by the plaintiffs is, well, we're not offering any of this for the truth of the matter asserted. So 87 pages of police reports, a hundred pages or however many there are of trash, you know, witness transcripts, no, no, no, no, none of that is being offered for the truth of the matter asserted, we want to offer it to show Ms. Maxwell's state of mind when she issued her statement through Mr. Barden and Mr. Gow. So the huge problem with that, your Honor, which we've already dealt with, is, Ms. Maxwell has no knowledge of what's in these police reports, the trash pulls, any of these things, and so as a matter of law, this can't be part of her state of mind.

What is instructive on this point, your Honor, I went and read every single case that plaintiff's counsel cited for this proposition that it is state of mind, and what's great about these cases, frankly, every single one of them, whoever the statement is being introduced on behalf of, or against, knows about the statement. So when you look at their papers, they cite United States v. Gotti for the proposition that it goes to state of mind. Well, you know who Mr. Gotti is, and Mr. Gotti was charged with witness tampering. Mr. Gotti wanted to introduce some wiretapped statements that the FBI had, where he was talking to an informant and telling the informant things that Gotti said went to his state of mind. Well, the Second Circuit said, yes, you can do that, Mr. Gotti, first of all, because the government's introducing part of these transcripts, and second of all -- so that's a rule of completeness, and second of all, you were there and you heard it and therefore, it would go to your state of mind and not for the truth of the matter asserted.

The next case is United States v. Dupree. That's another criminal case in this circuit, where a bank fraud defendant was the subject of a temporary restraining order issued to that defendant, okay? So, you know, he has a temporary restraining order, you can't take any money out of this bank unless you do X, Y, and Z. Well, he took the money out of the bank without doing X, Y, and Z, and when he came to trial in his criminal case, the government was allowed to introduce that restraining order because it was his restraining order, he knew about it, and it showed his willful intent to defraud as part of the bank fraud. So that's that case.

Arista Records, LLC v. Lime Group, LLC was another case they rely on. Again, these are emails that are being talked about that were written by the defendant's employees and then the responses to those emails. So clearly the defendants LLC had corporate knowledge of those things. Screenshots of software programs, statements made by an agent of the defendant, those are all the things that we're talking about in that case, and so there's actual knowledge of the entity of those statements, which then can go for state of mind.

There are two more cases. Crescenz v. Penguin Group, and the case says, it's undisputed the defendant had actual prior knowledge of the issues, of the at-issue statements that were offered by the defendant. Again, the statements were made to Crescenz.

And then the last case is a 1983 case, Tierney v. Davidson. That involved civil rights violations and objective reasonableness by the officers who conducted a search of a building. I think the Court knows from doing this kind of work that pretty much anything in an officer's head is allowed in a qualified immunity case, because whether the officer did something that was objectively reasonable or not depends on what's in the officer's head, and so there is (A) an exception in these kinds of cases, but (B), in fact, the evidence that was being discussed in the qualified immunity situation related to statements that the officers had heard, which formed the basis of why they went into a building.

So in each and every one of these cases and all cases that deal with state of mind, the person who it is being introduced either for or against, not for the truth of the matter asserted but for their state of mind, has to know about it.

You have attached to our reply an affidavit from Ms. Maxwell who says she's never read any of these police reports prior to January 2015. And there is good reason for that, your Honor. It's not easy to get these police reports.

As you've heard, the chain of custody behind these things after 2006 is a little sketchy. And, you know, it requires some effort. And so, you know, ordinary folks I don't believe are going to be, you know, rooting around trying to ferret out police reports from South Florida. Even if you get them, they are heavily redacted, and so when one looks at them, it's virtually impossible to tell who's at issue, who's saying what about whom, because there are lots of blackouts through these police reports. We managed somehow -- and frankly, I don't even know how -- to get an unredacted copy, and Detective Recarey was surprised when he saw the unredacted copy because he said, we always redact these things. And so I'm unclear as to how ours is unredacted, but in any event, there is one out there. But I don't know how we got it.

The other point on this, your Honor, is, again, there is some liberty taken in the plaintiff's papers about what Ms. Maxwell said or didn't say in her deposition about these police reports, and they try to make hay over, she knew about the police reports by the selective presentation of that deposition testimony. And I've cited the actual quote for you in the reply brief, but what is notable, in my view, is that when Ms. Maxwell is presented with these police reports, it is for the first time at her deposition by Ms. McCawley, and there is an exchange in the transcript where Ms. McCawley and Ms. Maxwell are going back and forth and Ms. Maxwell says, you know -- she's holding these police reports and she says, I know there is a police report. We go on 300 pages or so in the deposition, and it is clear from the transcript that when we get back to the police report issue again, Ms. Maxwell is being asked questions by Ms. McCawley. Ms. McCawley says -- and this is at page 169, lines 4 through 8 -- "Now that you have the police report that I showed you this morning that you had an opportunity to look at it," and Ms. Maxwell responds, "You gave it to me. I did not look at it." And there was no really other questioning at the deposition about Ms. Maxwell's knowledge of these police reports.

So the record on this issue, your Honor, which is going to continue to be the record, is that Ms. Maxwell has no knowledge of this police report, the investigation, anything that's going on with Mr. Epstein substantively during this investigation by the Palm Beach Police Department. So that's why it's not admissible. They try to cobble together what they view as sort of indicia of she should have known about what's in these police reports, and they first of all say -- we get back to this Dershowitz joint defense agreement issue, which I touched on yesterday, but you're going to hear it again today, so I think it's worth mentioning again. And here are the quotes exactly from Mr. Dershowitz' deposition.

Mr. Dershowitz -- somebody objects during this deposition, and then there's a colloquy. There's an assertion of privilege.

There's a little bit more colloquy, and then Mr. Dershowitz says: "This is a long time ago. My recollection is that very early on there was a joint defense agreement between several of the people who were of interest to the district attorney and to the federal government. That's my recollection. And I would only want to resolve doubts in favor of privilege." Then Mr. Dershowitz says: "We can check further. I would be happy to answer the question if it's not privileged." That's the testimony that they say supports their assertion of this joint defense agreement with Alan Dershowitz.

But there's more, your Honor. Mr. Edwards -- again, who is a party in this deposition and not a lawyer -- chimes in to the special master and Mr. Dershowitz: "Q. Ghislaine Maxwell was never the target of the investigation, was she?" Confirming and arguing that Dershowitz is wrong about this joint defense agreement at the time. And Dershowitz is admitting that he doesn't really know and we should check and we'll get back and people can ask these questions if I'm wrong about this agreement.

They also take liberty with Ms. Maxwell's discussion in her deposition about her knowledge about what happened to Mr. Epstein and what he pled guilty to. When you look at those pages of the transcript, you know, she says, I know he went to jail, and then there's a back-and-forth between Ms. McCawley and Ms. Maxwell about what did he go to jail for, and eventually Ms. Maxwell says, you know, I'm not really sure what he went to jail for. It had something to do with, she thinks -- Ms. Maxwell -- teenage prostitution or under-age prostitution or something like that. That certainly doesn't give you the ability then to ram in 400 pages of uncorroborated hearsay under the idea that somehow this is notice to somebody.

And I think there is one other factual claim that they make about, you know, what Ms. Maxwell should have known, which is not the standard. It is not incumbent upon an individual defendant to go investigate things. That's not the standard.

It seems to me that they have conceded that these documents are hearsay because they're saying, we're not offering them for the truth of the matter asserted; we want to offer it for this knowledge theory that we have.

So I've briefed the issue about business records, which they are not. I've briefed the issue about government police records, which they are police records, but essentially the same tests for business records applies to police records, which is, you have to be under a business duty to record the information, and court after court after court after court, across the country, has said, people in police reports, like witnesses, are not under a business duty as part of the police department. So all of those statements, the second- and thirdhand hearsay statements, are inadmissible, either as government records or police records or whatever you want to call them. They're just simply inadmissible for the truth of the matter asserted. You know, there may be a few things in these police reports that someone could, if they had a record custodian available, try to offer into evidence, but we don't have that here.

And so I think for all of those reasons, your Honor, this is a very strong motion that should be granted by the Court.

MS. McCAWLEY: Good afternoon, your Honor. Thank you.

The reason why they're battling so hard on this document is because it's so critical to the case. This is a police report that records numerous, over 20, under-age minors saying virtually the exact same story that my client gave about her abuse, over and over and over again. What they didn't say to you -- they skirt around Detective Recarey. You have his entire deposition transcript, which we've noted for next week, with all of his testimony. He took these statements. We went through the business records exception with him. He walked through, yes, I recorded this in the course of my work. We've got it in our papers. I did this under my duty. I interviewed these witnesses. I recorded it, etc., etc., etc., all in this document. I mean, with every document that's come up, they claim, particularly government documents, this is something that we've found out of thin air and that it has no value to it or trustworthiness. He sat in his deposition as the detective who handled this entire investigation and walked through each of those people, your Honor, and walked through how he recorded it in this document. So this is authenticated through Detective Recarey, who is a witness in this trial, on our trial exhibit list.

To be very clear, this document is so critical because it mentions Maxwell in it. It talks about Maxwell's stationery being at the house, it talks about other issues with respect to Maxwell. When I asked her at her deposition and I gave her this document -- and you can look at the testimony, your Honor, we want you to look at the testimony -- she says: I've seen it. Later in that deposition, they talk about her battling me over she wouldn't look at certain things I gave her, in front of her, right? So there was an attitude issue during that deposition that I had to manage. And that was what was coming up in that section. It wasn't that she didn't say she had seen it. But your Honor, we are allowed to put that in front of her, in front of the jury, and say: Did you know about this at the time in 2005 when you were photographed kissing Epstein on the day the investigation started? You were working for him. You've admitted that. You didn't know about all these little girls coming to the Palm Beach house that you were working at, that you claim you were the house manager for? We should be entitled to get this in --

THE COURT: That is for the truth of the matter.

MS. McCAWLEY: Whether she knew about it. That's not for the truth of the matter, your Honor. That's what she knew at the time, right, she made the statement, did she know about all these individuals in the police report, did she know about this. So that can be offered not for the truth but to show whether she knew about it. Whether she knew that at the time she was making that statement, it was false, because not only did my client get abused there but so many other girls as well.

So, your Honor, that's part of it. And in your order, in your June 20th order, you said --

THE COURT: Excuse me.

MS. McCAWLEY: Sure.

THE COURT: You say the detective authenticated these documents. He didn't authenticate them in the sense of saying that these are part of the file. I mean, it's not that kind of an authentication.

MS. McCAWLEY: It is, your Honor. There are two different things, and I'm jumping around a little bit, so that's my fault. I'm sorry. But there are a series of questions -- and I believe it's in our brief but it's also in our designations -- where we walked through with him how he conducted the investigation, how he recorded the information of these witnesses, the interviews of the witnesses, the fact that they were reported in this document, etc., in his testimony. So that's one piece. And that's why this could come in under the business records exception. But even if it weren't to come in under the business records exception, it can come in not for the truth of the matter asserted but to show for knowledge. And you say in your June 20th order, "Notwithstanding the questions are directed to reveal relevant answers regarding defendant's knowledge of plaintiff's allegations, that knowledge goes directly to the truth or falsity of the defamation, a key element of plaintiff's claims." In other words, what Maxwell knew at the time she's making the statement goes to the truth of the falsity of those statements, and that includes this police report, your Honor, so we believe that it's critical evidence to show that. And you'll see that, again, she was working for the defendant at the time that this investigation happened. She has testified to that. She was on the flights with him at the time this was going on over 300 times during that period.

THE COURT: You know, spare me the flights, okay?

MS. McCAWLEY: Sure. Okay.

THE COURT: I've heard that before.

MS. McCAWLEY: Sure. I'm sorry, your Honor. I'll try to cut to the chase here.

So certainly, you know, it's interesting, because you heard defense counsel here not too long ago saying that they wanted to get in police reports of an under-aged minor, Virginia Giuffre, from when she was 14, being raped by two other boys, right? But now police reports are not allowed in at all, right? A police report where I've got the detective coming to testify about the police report that he took in his investigation, oh, but that can't come in. And what's interesting is, they went through all of our cases but they failed to look at their own cases, because Smith, which is a case that they cite in their brief on trying to get the police reports in, a Southern District of New York case, says that this can come in. It says, "Statements in a police report are not inadmissible hearsay where, as here, they are not offered for the truth of the matter asserted but for purposes of showing whether the arresting officer had the information giving them probable cause in that instance." So what we are doing here, your Honor, is putting forth this police report to show whether or not Maxwell had the knowledge of that, which we are entitled to ask her those questions at trial, your Honor, and to utilize this police report in that regard.

So, your Honor, it comes in for two reasons. One, under the hearsay exception, which is the business records exception through Mr. Recarey's testimony, which is detailed in our briefs. He was deposed for a full day. He walked through all of these documents in his investigation, and we laid out that, the standard in there. He testified that it was a record kept in the regular course of his work. He testified that it was something he had to do in accordance with that work. He testified that he was the primary author of that and that it had -- and of course it had the trustworthiness, your Honor. So we were very careful, because we knew how important this document was, to walk him through that when we had him at his deposition. And again, your Honor, those deposition designations are set forth for next Wednesday.

THE COURT: How do we know that this is the total record? Or is it the total record? We don't know.

MS. McCAWLEY: Well, Recarey testified -- we showed him this document as an exhibit in his deposition, and he testified regarding this being something that he recorded in the course of his own work.

THE COURT: But it's part of the record. Is it all of the record?

MS. McCAWLEY: Meaning all of the record of the entire investigation? We have produced that in discovery, your Honor, through the -- we have a FOIA response, which is how we got the videotapes of them walking through the Palm Beach house, all of the other materials related to the investigation.

THE COURT: I see. Okay.

MS. McCAWLEY: So then, your Honor, we deposed the detective to try, of course, to establish that this was the record to get into evidence.

Your Honor, they also mentioned -- and this is actually in the in toto motion, but they jumped to it so I need to address it, and that is one of the witnesses in here, AH, who was a minor at the time, also gave a recorded statement as part of that. We took her deposition, and they're, you know, in my view, vastly misrepresenting the deposition. And you can look at the quotes themselves, but she testified in great detail about the activity at the house, verifying that what she said in her recording and in the police report was in fact correct. And she is a witness on our trial list. She is a minor who was abused in the same manner that my client was. She was exposed to him on a number of occasions. And we have her testimony, and we have sought to enter that as a witness in this case. And again, that's in the in toto motion which I think is being heard next Wednesday, but just to address it, since they raised it.

The other issue they raised are the message pads. These have come up from time to time in this case and come up through different witnesses. Now the message pads come in in a number of ways. One is Juan Alessi, who is one of the house butlers. He testified that those were the messages for which they recorded -- we showed him the messages. Yes, that's my signature. Yes, this is how we recorded our messages. He worked at the house. That was his duty to do those things. Maxwell's on those messages as well, so we intend to ask her about those, you know, were you having three girls come on this particular day, etc., etc.? So those are documents that should come into evidence because they have been validated by an employee who works at the home and are things that should be able to be utilized at trial, and Maxwell should be able to be shown those and explain whether or not there is some issue with respect to those statements.

So your Honor, that's all evidence that we do want to enter at the trial, and certainly we have done our diligence with respect to the police report to make sure that we do have Detective Recarey's testimony on it. I submit if you review that, you will see the reason why that it should come into evidence. But regardless of the hearsay issue and the business records exception, again, as you said in your June 20th order, the point of defendant's knowledge at the time she made a defamatory statement is very significant in this case, so if she knew -- even if she didn't believe my client, if she knew that there had been a number of other under-age minors that were abused in this circumstance, to call my client a liar in the face of all that knowledge is something the jury should be able to consider. So that is a piece that is important and relevant to this case. And you can always give a cautionary instruction. If you're concerned at any level, as you know, you could add a cautionary instruction with respect to the police report. But we should be entitled to ask her questions on the stand when she's under oath about what she knew with respect to this very significant document.

Thank you, your Honor.

MR. PAGLIUCA: Briefly, your Honor.

So first, we're doing a mix and match here of different things, which I like the rules of evidence because they're rules and I can read them and they say what they say.

Even if, even if, you had a gold-plated record custodian from the Palm Beach Police Department come in here and make all of the findings that you needed to find as a business record exception or a government record exception, the case law is absolutely clear that second- and thirdhand hearsay is inadmissible through police reports.

I use this example because it's a good one, I think. As part of my practice, I represent people accused of crimes, and so we get discovery as part of my practice. Guess what? That goes into my files and I keep it as a matter of course, and it is a business record of mine because I keep it in due course. Now that doesn't mean that it simply would get admitted into a trial whole cloth for the truth of the matter asserted, just because it's a business record of mine. And why? What's the answer? Because the statements that are included in the police report, or the discovery that I get, that I put in my file and I keep very carefully as a business record, don't magically become nonhearsay, because the people who are making those statements are not under any business duty to report to me. And that's what the business record exception is all about. There is trustworthiness when someone, you know -- if it was a billing record of mine, that's a different story. But the business record exception, 803(6), everyone in the chain of the hearsay link has to be under a business duty to report. So there are cases where officers are allowed to testify about things that they wrote in their report because they observed them or another officer told them or it was a test that maybe happened within the police department. But what they're not allowed to talk about, under a business record exception, are witness statements. And that's what Ms. McCawley wants to try to introduce to the jury in this case -- 87 pages of witness statements from people who we don't know who they are and there's no evidence that they had any association with Ms. Maxwell.

Let me finish with this state of mind issue.

THE COURT: But before you do, why isn't it an 803(6) exception?

MR. PAGLIUCA: It could be, your Honor. So 803(6) --

THE COURT: Okay. So what you're saying is, yes, the reports could get in, but not the hearsay part.

MR. PAGLIUCA: Exactly. That's exactly right.

THE COURT: Well, okay. Of course what the plaintiff would say to that is, okay, fine.

MR. PAGLIUCA: Well, then you're redacting 90 percent --

THE COURT: I didn't say redaction. It's hearsay, it's not being offered, but of course it is being offered for the truth of the matter.

MR. PAGLIUCA: Exactly. You know, this is a smokescreen about it goes to Maxwell's state of mind. And when you carefully go through these police reports, there is not one of these alleged victims who identifies Ms. Maxwell as having anything to do with any of this. Which is another important point.

What I find curious, again, Ms. McCawley usually says there are 30 victims identified in these police reports, which isn't true. And when I asked Detective Recarey to go through them with me and identify how many people he said were victims, there were 17. And so now today she said there were 20. So she's working her way my way. But, you know, that's the problem here, your Honor. This is being offered for the truth of the matter asserted. All they want to do is get in front of a jury that there was a police department investigation in which Epstein was the target and Epstein is alleged to have done all of these bad things; therefore, you should punish Maxwell because then they're going to say, she was his girlfriend, she had to have known, yada, yada, yada, yada, he's a bad person, she's a bad person, find her liable, and whack her with a big damage award. That's what's going on here.

Thank you.

THE COURT: What's next?

MR. CASSELL: The motion on Kellen and Marcinkova, our motion to get in adverse inference.

THE COURT: Yes.

MR. CASSELL: If I can be heard on that, your Honor.

THE COURT: Excuse me. Let me go back to where we were.

Those statements, the statements of the "victims," are being offered for the truth, are they not?

MS. McCAWLEY: Your Honor, I do not believe they're being offered for the truth because what we're saying -- we're not saying whether or not what those victims said was necessarily true. We're saying was she aware that there were a number -- and they take issue with the number. I don't see a difference between 17 and 30. But was she aware that there were a number of other individuals making reports at the time she said my client must have been lying about being abused as a minor. So whether or not those are true or not, the reports, was she aware that there were a number of reports out there from other little girls saying that they were also brought to the massage room. And that goes to her state of mind at the time she made that statement where she defames my client internationally.

THE COURT: Yes. But aware of the reports. How could she be aware of the reports? Aware of the girls and the activity, that's the truth. But aware of the reports.

MS. McCAWLEY: Yes, your Honor, and the reason why she could be aware of the reports is because she'll -- remember, her testimony is that she worked for Epstein from the early '90s until 2009. This investigation took place in 2006, your Honor, during the course of the time she was allegedly managing the Palm Beach home and his active employee, his right-hand person. So yes, of course, we should be able to ask her those questions, show her the report: Were you aware of this, of these reports? Were you aware that these reports were made, you know, as part of this investigation? And then she can answer that.

THE COURT: Well, that's fine. You could do that. You could show her the reports and say, were you aware of them, but that would not get the hearsay part in.

MS. McCAWLEY: Well, your Honor, and of course we have two other of the exceptions, the business record exception, which we talked about, and we also noticed this as one of the residual hearsay --

THE COURT: Yes, but even as a business record, I think counsel is correct -- under the business records exception, the activities of the cops and what they did, all of that can go in, yes, because they're under a duty, etc., but not the statements.

MS. McCAWLEY: So for example, one of the witnesses on our witness list is AH, who is in the report and she testified in this case.

THE COURT: Well, that's a different issue. And you said you're going to present her.

MS. McCAWLEY: Yes.

THE COURT: Well, all right. That's a different question. But in other words, you could show her the report and ask her if she's aware of these reports. I assume what her answer is going to be. And that's the end of it.

MS. McCAWLEY: Well, your Honor, I mean, obviously we'd like to enter the reports under the business record exception through Recarey and through the residual hearsay --

THE COURT: But even if you do that, I don't see how you avoid eliminating the hearsay.

Well, okay. All right.

MR. PAGLIUCA: Your Honor, could I have one final comment on this. If they're not being offered for the truth of the matter asserted, they're really not relevant to this case is my final point, because if they're not being offered for the truth of the matter asserted, at best it's a neutral as to whether these things did or didn't happen. If they didn't happen, they would certainly be supportive of Ms. Maxwell's state of mind if she knew about them. If they're not being offered for the truth of the matter --

THE COURT: Well, it might be material that she knew that there was an investigation.

MR. PAGLIUCA: You know, she could be asked that question: Did you know there was an investigation? I think she's going to say no. I gave you her affidavit in which she said prior to making her statement, she had never seen these police reports. So we all know --

THE COURT: That's a different question.

MR. PAGLIUCA: I understand. But we all know the answer is, that's in these police reports, and I'm pretty sure she testified at her deposition that she wasn't really aware of this investigation. All she knew -- I think is what she testified to -- was that Epstein went to jail and she knew at some point he was a registered sex offender. Those are the two things I think she knew at the end of the day at this deposition. Anyway, I agree with you that the question, did you know there was an investigation, you know, I suppose you can ask that question and the answer will be yes or no, whatever it is.

THE COURT: Okay.

MR. PAGLIUCA: All right. Thank you.

THE COURT: Okay. I'm sorry. Forgive me for interrupting.

MR. CASSELL: No. Your patience has been appreciated today, your Honor.

I want to address now the Marcinkova and Kellen adverse inference motions. We're a moving party. There are reciprocal motions both ways on this. I have the numbers available, if that would be useful. I believe 673 is the defendant's motion and 689 is our motion. So those would be the two motions going, obviously, in different directions.

Your Honor is familiar with these issues because of the Epstein adverse inference motion that was argued I think two weeks ago by me, and at that time -- I know you have not yet formally ruled on the motion, but there was extensive discussion about could we just kick this down the road to the trial and see, you know, what Epstein says at that time and, you know, after he testifies, sort out whether there's an adverse inference. Again, you haven't ruled on that, but I think I indicated at the time that certainly from Ms. Giuffre's point of view, we would have no objection to handling Mr. Epstein in that way. I want to make clear that we would also have no objection to handling the Marcinkova and Kellen issue in that way as well. You can put them on via deposition, and then we could sort out in the context of the case with a full record whether an adverse inference is appropriate. But we surface the issue for you now so it wouldn't be something you'd have to do on the fly in the middle of trial. And all the allegations, of course, that have been made here, I think it's important to put Kellen and Marcinkova on the conspiracy scheme, if you will. The top of the conspiracy is Mr. Epstein, his right-hand player then is Ms. Maxwell, and in the conspiracy, again, in our view -- we understand the defense will take a differing point of view on this, but in our view, the conspiracy's next echelon is Kellen and Marcinkova.

And so for example, Ms. Giuffre has made allegations about certain things. Ms. Maxwell can't remember or denies them, so of course Ms. Giuffre then looks to corroborate her allegations of a conspiracy, and the first person she goes to is Epstein, and you're familiar with that. The second and third people that she goes to are Kellen and Marcinkova, because they report immediately to Ms. Maxwell in the conspiracy. And Ms. Giuffre is going to be talking about that during the course of the trial, and immediately the jury is going to wonder, well, gosh, I wonder what Kellen says about that? I wonder what Marcinkova says about that? And your Honor will recall that we went to great lengths to get them to testify. They were evading service, in our view. We ultimately had to come to your Honor to get alternative service, and it was only at that point that we were able to have them sit for their depositions. They sat for their depositions now, and what we hear from the defense, if I understand it, is that we don't have a good-faith basis for asking Kellen and Marcinkova, gee, weren't you a part of this sex trafficking and sex abuse conspiracy? I think the way they put it in their brief is, all of this evidence shows nothing other than Ms. Maxwell might have been at the same place at the same time. It's just, you know, a happenstance they were in the same place and that's not admissible. Well, your Honor will notice in our opening brief on this, at pages 15 I think through the next ten pages or so, we've gone through with a chart and we've said, okay, here's the question we asked, and then in the right-hand column of our chart we put in the witnesses and, you know, the flight logs. I know other things that your Honor is very familiar with. This is why we're asking these questions. You know, the flight logs have been talked about over and over again, but for good reason. Kellen is on some of these flight logs, and what's up? Those are the questions that we asked, and of course she takes the Fifth.

There are other things as well. For example, Sarah Ransome testified, I witnessed with my own two eyes Sarah Kellen reporting to Ghislaine in front of me, but I can't remember specifics. They weren't talking about girls. I can't remember the specific conversation, but every single person, 100 percent, 200 percent, reported to Ghislaine. Later on in that same deposition -- that was at page 288 and thereabouts. At page 387: I witnessed the same thing -- all the girls did -- the same thing I had to do was go and report to Sarah Kellen, Leslie Groff, and Ghislaine Maxwell. Ghislaine was the main lady. So again, we have an allegation by our client that Ms. Maxwell was a part of a larger conspiracy. That's one of the central issues, of course, in the case. One of the things that was called an obvious lie. And so we want to bring in the co-conspirators and ask them, Ms. Giuffre says you were in a conspiracy and what's your side of the story on that? And they take the Fifth. So there we are. The question is, are we going to conceal that from the jury or are we going to present it to them? Well, the Second Circuit case that your Honor is well familiar with, LiButti, sets out the factors that have determined that issue, and one of the things we hear from the defendant is, oh, it's never been applied in a case like this. I would just direct your attention, as I did during the Epstein argument, to the case of FDIC v. Fidelity & Deposit Co. of Maryland. That's a Fifth Circuit case from 1995, in which a bank officer was accused of dishonest and fraudulent acts and kind of bogus loans, and the Fifth Circuit allowed Fifth Amendment invocations from the loan recipients to be used against him, reasoning that, well, in this kind of a case, the collusion then is shown by the Fifth Amendment invocation of the participants in the conspiracy there. Fifth Amendment invocations can be held against someone who's accused to be a part of that conspiracy, which of course is exactly what we have going on here in a civil context.

LiButti, by the way, the Second Circuit case, which is controlling in this jurisdiction, favorably cites the Fifth Circuit case in FDIC v. Fidelity & Deposit Co., explaining that

that is one of the reasons why in the Second Circuit they think this is a good rule of law, because they approve of the result that the Fifth Circuit reached in that co-conspirator case.

And LiButti then goes on, as your Honor is well familiar, with laying out four different factors. The first is the nature of the relationship involved. The relationship here is co-conspirators. They're in the immediate next echelon of the conspiracy. They are direct reports in the business sense, although this is a criminal enterprise, but Kellen and Marcinkova are direct reports to Ms. Maxwell. Of course the conspiracy continues. This is not just at the time of those events. The conspiracy continues to today, and your Honor is familiar with that from the fact that they were evading service while we were trying to obtain their testimony last year. Eventually they show up with lawyers, a Bruce Reinhart I think is an Epstein lawyer; I think at some point Ms. Marcinkova had Mr. Goldberger, who's an attorney for Mr. Epstein now. They've both made significant efforts to evade service. Why? Because in our view the conspiracy continues to this day. The conspiracy is trying to conceal what was done to girls in Florida over an extended period of time. The concealment continues through the efforts not only of the defendant but also through the efforts of Kellen and Marcinkova.

But there's more that binds them together even today. Your Honor is of course familiar with the nonprosecution agreement that's at the heart of this case. Remember the issue that we were talking about yesterday. The nonprosecution agreement says to Mr. Epstein, we will not prosecute you, or any potential co-conspirators, or, and then there were four named individuals. Two of those named individuals are Marcinkova and Kellen. So they're bound together and have a common interest in trying to preserve that nonprosecution agreement, which means, of course, attacking people who are attacking the nonprosecution agreement, such as Jane Doe 3, that is, my client, Ms. Giuffre.

And that is the first factor, the nature of the relationship there. Very tightly bound.

The second one is the degree of control in which the party has vested the nonparty witness in regard to key facts and the general subject matter of the litigation. That's a direct quote from LiButti. And the evidence here -- and again, I won't belabor all of the flight logs and specific evidence, but it's recited, you know, in a ten-page chart in our brief. Kellen and Marcinkova are very tightly bound with the defendants. They are direct reports. They are working closely together. I just quoted Ms. Ransome saying, you know, that that was the person that they were talking to, and so you have a very significant degree of control.

The third factor from LiButti is compatibility of interests. Perfect compatibility of interests here.

Ms. Giuffre has said there was a conspiracy involving all of these individuals. They're all going to say no, there wasn't. We'll have a trial on that and hear the evidence. But the compatibility of interests is, that team is against Ms. Giuffre. Those co-conspirators are all working together to try to undercut the credibility of Ms. Giuffre. And of course they're all hoping that she will lose this trial, which they will then celebrate as a victory. Of course if Ms. Giuffre wins the trial, they will all suffer a defeat because her credibility in making these allegations will have been established.

The final factor LiButti directs you to consider is the role in the underlying aspects of the litigation, and again, it's hard to imagine. I won't say they are the most important members of the conspiracy. Epstein is the most important member of the conspiracy, but the next most important, after Maxwell, who's the number two position, the next most important conspirator is Kellen and Marcinkova. I've used the expression before, it's kind of playing Hamlet without the ghost. We're going to be talking about a conspiracy without the conspirators in the case. We are trying to bring the conspirators here in front of the jury so that they can hear what the conspirators have to say when asked questions about what they were doing to Ms. Giuffre and what they were doing to similarly situated young girls.

The final point that the LiButti case directs you to consider is whether admitting the evidence will advance the search for truth. And here we have a conspiracy, and I'm using that term not as a lawyer but as a layperson for this purpose. Webster's defines to conspire means to join together in a secret agreement to do an unlawful or wrongful act or an act which becomes unlawful as a result of a secret agreement. And so we want to present the conspirator. Now we think that makes the case that this is highly relevant and also appropriate for an adverse inference. Again, your Honor could wait to rule on this at trial, but we think it's clear-cut now.

Of course once you determine that something's relevant, you then have to consider possible prejudicial effect. Obviously this is a case in which sex allegations are going to be at their heart. It's not like we have a business dispute where somebody wants to throw in sex abuse. We want to prove, in a case involving a sex conspiracy, what the conspirators have to say. And there's no prejudice then to Maxwell in the sense of unfair prejudice. He can ask whatever questions they deem appropriate as well. But the absence of the co-conspirators is of course highly prejudicial to Ms. Giuffre. Naturally the jury is going to wonder, you said Kellen was reporting to Maxwell. Where is Kellen? That's going to be the first thing they'll say when they go back into the jury room. Where are these people? And that's what they're going to say if we don't have an opportunity to present them to the jury.

The Court will recall the extraordinary lengths to which Ms. Giuffre had to go to procure their testimony. They finally were able to secure it, and they should be presented.

Also -- I think you'll be hearing these issues next week -- we used some leading questions during the deposition. We tried to also use some nonleading. Leading questions can be used when? When you have a witness who's associated with the party on the other side. Well, we said they're in a conspiracy. I can't imagine a case where there would be a clearer example of when leading questions would be appropriate.

The final argument they made, I think last night in their late replies was that we somehow missed the deadline in taking their deposition. What they don't disclose I think in their papers is, your Honor will recall that we had to come to you, obtain an application for alternative service, and then, as a result of that, they came in. We did all these things with the Court's blessing and approval of taking depositions. Those schedules were discussed with opposing counsel. And as soon as we'd taken the deposition, within approximately a week, we provided the designations. That was back in February of this year. There's no prejudice.

So for all these reasons, we would ask that we be allowed to present two of the co-conspirators in the witness box via the video depositions that we've taken.

MR. PAGLIUCA: I thought I was back to my old days as a public defender when I started the practice of law, your Honor. Now I'm arguing an 801(d)(2)(E) motion instead of a defamation case.

I think we have to start with the notion that is true, that this is a defamation case in which Ms. Maxwell is alleged to have made a defamatory statement in 2015. In that defamatory statement Ms. Maxwell does not mention any of these individuals and doesn't mention Mr. Epstein, and so the starting point for this is, this is an entirely different issue than Mr. Cassell and his fantastical conspiracy argument here.

If we want to stick to the legal issues in this case, I think we first need to understand that there is actually a specific rule of evidence that relates to co-conspirator hearsay exception, and that is Rule 801(d)(2)(E) of the Federal Rules of Evidence, and significantly, under that rule -- and this is why the cases using Rule 801(d)(2)(E) find indicia of trustworthiness in co-conspirator hearsay statements -- they are made at or during the course or in furtherance of a conspiracy. And absent that finding, statements of co-conspirators are deemed to be hearsay.

So what we're talking about here are not statements purportedly made by any of these individuals in 2000 or 2001. We're talking about statements that they are seeking to (A) introduce or (B) adversely inference that are made in 2015 that had nothing to do with any alleged course of or in furtherance of a conspiracy. Any alleged conspiracy would have terminated years ago by operation of many different rules and law. So Mr. Cassell's entire conspiracy theory predicate to this has nothing to do with the four LiButti factors.

And when we talk about the LiButti factors, you know, there is really zero evidence that's been presented to your Honor. First of all, the relationship now, in 2017, between these individuals -- because that is what the controlling relationship is, not some relationship that happened or didn't happen in 2000 or 2001. It is the relationship during the course of this litigation, not some other litigation. And indeed, there is no relationship between these folks. At best, for a brief period of time, a brief period of time, these folks worked in different capacities for Mr. Epstein, at best, and that brief period of time is more than ten years ago.

The other part of this that Mr. Cassell overlooks or doesn't want to talk about is what really is at issue -- and this relates to this close present relationship -- does this witness have some reason to protect Ms. Maxwell. I mean, that's really the inquiry here. Is the witness invoking her, in this case, privilege against self-incrimination because it's going to have some benefit to Ms. Maxwell? Well, there is no benefit to Ms. Maxwell for the invocation of the Fifth

Amendment privilege here because indeed, if these witnesses were to testify truthfully, the testimony would be beneficial to Ms. Maxwell.

If you ever get the opportunity to watch the video of these two witnesses, your Honor, it's remarkable because there's a lot of eye rolling and facial expressions in response to the leading questions by plaintiff's lawyers that, in my analysis -- I may be testifying, your Honor, I must admit. But in my observation, it was basically a nonverbal "that's not true" and then the invocation of the Fifth Amendment privilege, and if that gets played for the jury, the jury can see that or you can see it. At one point Ms. McCawley chided one of these witnesses and said something like, you know, if you keep doing what you're doing, we're going to have to do something else, because she didn't like the facial expressions or the words that the witness was using to invoke the Fifth Amendment privilege. That's how much these folks could help Ms. Maxwell but can't, and they can't because they're protecting their own interests. They're not protecting Ms. Maxwell's interests. They're worried that if the plaintiff's lawyers succeed in Florida, they have some threat of prosecution, so they're not going to testify. But again -- and this is, again, a point that seems to be overlooked by plaintiff's counsel -- these two individuals are indeed named in this nonprosecution agreement by name. Ms. Maxwell is not, and Ms. Maxwell didn't choose to invoke her Fifth Amendment privilege. She shouldn't be penalized because the people who are concerned and are named in this nonprosecution agreement can't testify because the plaintiff's lawyers are trying to undo their agreement with the government.

Ms. Maxwell has no ability to control these folks. You know, we certainly weren't going to stand in the way of plaintiff's trying to take their depositions, but we have no control over them, in securing their testimony or requiring them to cooperate in any sense.

I cite to the Court the case of Coquina Investments v. Rothstein, which I didn't realize until I was reading this last night is ironic because the defendant in the Rothstein case is Mr. Edwards' former partner, who's doing 55 years in a federal penitentiary right now. But in that case, which is very similar here, the court wouldn't impose an adverse inference against an employer for an employee, even though the employer was paying for the representation of the employee. And that case is I think significant because the court again focused on the relationship at the time of the deposition and not some prior relationship.

I talked about the co-conspirator issue. You know, that's just attorney argument asserted as fact here, your Honor. No one has ever found that these folks are co-conspirators. It's Mr. Cassell's and Mr. Edwards' theory, but it certainly is not anything that there is going to be any real evidence about in this case.

The next two LiButti factors, the next one relates to any interest in the outcome of the litigation. Again, Mr. Cassell has to manufacture some interest here. These folks are not defendants in this case, these witnesses. They have no financial interest. They have no ties. There is no joint defense agreement. There is no indemnification agreement. There is nothing. They have absolutely no dog in this fight, again, which is no interest in the litigation.

There's just really nothing that would allow any adverse inference in this case one way or the other.

Finally, your Honor -- well, two final points. The questioning, you know, the kind of questions that were posed to these witnesses were precisely the kind of questions that have been disapproved in the Second Circuit. And that's Brink's Inc. v. City of New York, which is in the papers; WorldCom Security Litigation, also in the papers; and LiButti itself. These are not technical objections. It serves no legitimate evidentiary purpose for a lawyer to come in and simply ask a very bunch of highly charged, leading questions to which they know the witness is going to say, "I take the Fifth." There is no evidentiary ball advanced with those questions, because it's just lawyer argument that doesn't do anything for anybody. So both sides could ask a hundred questions, they could both be leading, they could both be exact opposite questions. The witnesses would say the Fifth to everything, and then you look at the jury and you say, okay, now you can impose an adverse inference against anybody you want to based on the questions that the lawyers asked. I mean, that's really what this ends up being, and it's a waste of time, and it is of no evidentiary significance.

Then the last point, which I'm just going to need to correct Mr. Cassell on, the plaintiffs were saying somehow that we were untimely in not designating portions of these depositions which we believe are wholly inadmissible, and the point of our reply was, wait a minute, you didn't designate any of this testimony until after the designation date was over.

(Continued on next page)

MR. PAGLIUCA: (continued) I don't care about that, but, you know, I mean, we're going to deal with these issues, and we'll deal with them so the timing is of no consequence to me, but I'm not complaining about it, I'm just responding to it.

But for those reasons, your Honor, you shouldn't allow anybody to present any adverse inference from these witnesses. They should not just be part of this trial. Thank you.

MR. CASSELL: In reply, your Honor, I think you can just see from the upset there what's going to be happening at this trial. This is the direct quote from Mr. Pagliuca. "Fantastical conspiracy". That's going to be the argument from the other side. They're obviously entitled to advance that argument. But that's what Ms. Giuffre is going to need to respond to at the trial. And, of course, the jury will think this is a fantastical conspiracy if Ms. Giuffre doesn't even bring in some of the alleged conspirators such as Epstein, Kellen, and Marcinkova.

Now, we'll hear that this is somehow a hearsay issue under 801(d)(2). This is not a hearsay. There are going to be witnesses in the case, questioned and cross examined. So this isn't a question of inadmissible hearsay, this is a question of presenting a witness to the jury.

THE COURT: How do you think this evidence is -- it's going to go in by way of either deposition or the depositions already taken --

MR. CASSELL: Yes.

THE COURT: -- or by the witnesses being compelled to come and invoke and so on? I think we know how that's going to work out.

MR. CASSELL: Right. I think in this case it's going to be through the deposition that's been recorded.

With Mr. Epstein, we're going to bring him here live because we've been able to reach him by subpoena, but these two have been difficult to reach by subpoena, that's why we've taken their deposition.

And so Mr. Epstein will testify live, he would invoke, Nadia Marcinkova and Sarah Kellen, the deposition has already been taken. And in our --

THE COURT: What do you do about the statement that counsel just made about the impropriety of the questions?

MR. CASSELL: Right. So you can't just say, hey, is the moon made of green cheese and they take the Fifth. You can't put that in, and Booty recognizes that. There has to be independent evidence that supports each question that's asked.

And so what we've done in our brief, if you look at page 17 of our initial paper -- if I can just illustrate one.

THE COURT: No, that's all right. That's fine. I get the point.

MR. CASSELL: Right. But I think this is a fair point about the defense. I'm not sure that they get the point because we've said here's a question --

THE COURT: Don't worry about educating them. It's me you've got to educate.

MR. CASSELL: So I would just direct you to our -- we've tried to show, this is not a moon made of green cheese, we have very specific support for each --

THE COURT: I hear you. I hear you.

MR. CASSELL: -- of the questions.

THE COURT: You've got it in the brief. I understand.

MR. CASSELL: Right.

So with regard to their interest in the case, obviously, they have an interest in this woman who is accusing them of being involved in a sex trafficking and sex abuse conspiracy having her lose this case. They would be popping champagne corks. They clearly have an interest in the case.

The other problem, remember, under Booty, the question is well, are these witnesses that the plaintiff had some control over? Is this somebody that the defendant has vested control over these facts?

These were direct reports. I don't think I heard any response to that from the other side. These were direct reports to Maxwell, and so these are the people who, you know, when Ms. Giuffre alleged that she's involved -- Ms. Maxwell is involved in doing these things, these are the women who are executing the orders for Ms. Maxwell, and it's not part of a fantastical conspiracy.

All we want to do is have the jury hear this information. We've provided in our brief very specific support for each of the questions that we want to ask. We think it's entirely appropriate that the jury hear what these two have to say.

THE COURT: Thank you.

Where are we now? Yes.

MS. MENNINGER: Your Honor, by my estimation, we have one motion left, which is 665 with the opening brief.

THE COURT: And what's that?

MS. MENNINGER: It was our motion to prohibit questioning of our client regarding her consensual adult sexual activities.

THE COURT: Yes.

MS. MENNINGER: Do I take that as a go ahead and talk or --

THE COURT: No.

MS. MENNINGER: Okay. I wasn't sure.

THE COURT: Yes, well, I can understand.

How can you possibly know what we're going to do when I don't know what we're going to do?

MS. MENNINGER: Your Honor, I'm happy to defer this issue. I believe it is somewhat --

THE COURT: Yes.

MS. MENNINGER: -- enmeshed with some of the other motions that, based on plaintiff's representation, they want to put off until another day, so -- until the 15 days before, in particular, so I'm happy to wait.

THE COURT: How does that figure -- I'm sorry. Explain to me how that figures into the --

MS. MENNINGER: Into this motion?

THE COURT: Well, these are the things about which they have to give notice.

MS. MENNINGER: Exactly, your Honor. The issue in this motion, and I'll try to be slightly circumspect, but in this motion, we have agreed that our client can be cross examined with respect to plaintiff, any of plaintiff's allegations, with respect to any other minor victim. Our client has absolutely denied having been involved sexually with plaintiff or with the minor victim.

They would like to introduce evidence of some kind every other acts with other people. They have not yet specified, apparently, completely, what other acts and what other people they're talking about.

THE COURT: So I think we should --

MS. MENNINGER: Right.

THE COURT: So I think we should wait until we get it all. Okay. So that takes care of that.

MS. McCAWLEY: Your Honor, there's just one more thing procedurally, if I could indulge the Court while I have your attention before we all leave. That would be helpful.

THE COURT: Don't count on it.

MS. McCAWLEY: Sorry.

THE COURT: Yes.

MS. McCAWLEY: It's just, in your order about the ESI and the issue with the non-production, you said that we should suggest hearing dates. I see that your Honor has moved the hearing dates to Wednesdays, so we were hoping to, since there's only a few Wednesdays left before our trial, reserve one of those to handle that hearing?

THE COURT: Well, I'm not sure.

MS. McCAWLEY: Or whatever day would work.

THE COURT: No. Okay. Now, it seems to me, correct me if I'm wrong, on the 5th we're going to do Epstein's motion, the deposition designations, the biforcation --

MR. CASSELL: I'm sorry, we just did that.

THE COURT: By the way, maybe we could do the biforcation issue very quickly. What is it you want to --

MR. CASSELL: I think we just did that a few moments ago, your Honor.

MS. McCAWLEY: That was the one about the financial records.

THE COURT: By what?

MS. McCAWLEY: We just did that about the financial records, and you gave us some direction on that, so that one's been --

THE COURT: Oh, okay. So that's done. Okay. So that's the 5th.

MS. McCAWLEY: Yes. So then there's April 12th, which I believe is the following Wednesday, and then I think the one after that is the 19th.

THE COURT: Well, are we going to do a hearing -- I take it we're going to do a hearing on the reconsideration of the --

MS. McCAWLEY: That's what I'm talking about, your Honor. I'm sorry. Yes. So that's the evidentiary issue of -- you said they could present a forensic, based on your order of reconsideration of the November 2nd. So that's the date I'm looking for. I'm sorry, I should have been clearer about that.

THE COURT: When are we going to do that?

MS. McCAWLEY: Maybe the 12th or the 19th possibly?

THE COURT: How about the 10th.

MS. McCAWLEY: Okay.

THE COURT: Does that work for you all?

MR. PAGLIUCA: I can't do the 10th, your Honor, I'm in a deposition all day in Colorado. I'm sorry.

THE COURT: How could you possibly take another case?

MR. PAGLIUCA: Well, believe me, I have a lot of clients that are saying that exact same thing right now, your Honor.

MS. MENNINGER: Your Honor, could we do the 13th, the Thursday of that week?

THE COURT: Yes. I don't see any reason not to. Okay.

MS. McCAWLEY: That's all I had, your Honor. Thank you. And thank you for your patience, everyone, today.

THE COURT: Have we completed the briefing and everything everybody wants to submit on the black book issue?

MS. McCAWLEY: Well, yes, your Honor. So now, as of last night, it was fully briefed. So there are three briefs on it, essentially. We had a motion in limine to allow it in, they had a motion in limine to exclude it, and it came up previously -- I forget, we argued it a couple weeks ago in the context of another motion -- oh, I'm sorry, because, your Honor, you requested that with respect to Diane Flores. So we didn't reargue it today, it is fully briefed for you.

THE COURT: Okay. In other words, I've got everything on that.

MS. McCAWLEY: You do, your Honor, yes.

THE COURT: Okay. Anything else?

MS. McCAWLEY: Not that I'm aware of.

MR. PAGLIUCA: I think we're concluded today, your Honor. Thank you.

THE COURT: Okay, thanks. Have a nice weekend.

(Adjourned)

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

--X

VIRGINIA L. GIUFFRE,

Plaintiff,
v.

GHISLAINE MAXWELL,

Defendant.

--X

15-cv-07433-RWS

Defendant's Response in Opposition to Plaintiff's Omnibus Motion *in Limine*

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EEOC v. Grief Brothers Corp., 218 F.R.D. 59, 61–62 (W.D.N.Y. 2003).. 25

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REDACTED

Dated: March 17, 2017

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Night Flight

They say that you can read a person's feelings on his face. But if so, either I'm a very good actor – the opposite of what anyone who has worked closely with me would tell you – or the journalists clustered in front of me weren't very good face-readers. They said that I looked defeated. Distressed. *Depressed*.

Yet as I delivered my brief final statement outside an olive-green cabin at Camp David, the American presidential retreat in the forested Catoctin hills north of Washington, I felt none of those things.

Yes, I was disappointed. I realised that what had happened over the last 14 days, or more crucially what had *not* happened, was bound to have serious consequences, both for me personally, as Prime Minister of Israel, and for my country.

But I had been a politician, at that point, for all of five years. By far most of my life, I had spent in uniform. As a teenager, small and slight and not even shaving yet, I was one of the founding core of a unit called *Sayeret Matkal*, Israel's equivalent of America's Delta Force, or Britain's SAS. It may be that the way I thought and acted, the way I dealt with danger or with crises, came from someplace inside me. Even as a young kid, I was always quiet, serious, contemplative. But my 13 years as a part of Israel's main special-forces unit, especially once I became its commander, etched those qualities more deeply. And they added new ones: a sense that you could never plan a mission too carefully or prepare too assiduously; an understanding that what you thought, and certainly what you said, mattered a lot less than what you *did*. And above all the realisation that, when one of our nighttime commando operations was over, whether it had succeeded or failed, you had to take a step back. Evaluate things accurately, coolly, without illusions. Then, in the light of how the situation had changed, you had to decide how best to move forward.

That approach, to the occasional frustration of the politicians and diplomats working alongside me during this critical stage of Israel's history, had guided me from the moment I became Prime Minister. In my very first discussions with President Clinton a year earlier – a long weekend, beginning at the White House and moving on to Camp David – I had mapped out at great length, in great detail, every one of the steps I knew we would have to take to confront the central issue facing Israel: the need for peace.

In choosing to return, now, to Camp David for two weeks of summit talks, I knew the risks. Of all the moments of truth in my life – and in the life of my country – few, if any, would carry higher stakes. Success would mean not just one more stutter-step away from our century-long conflict with the Palestinians. It would signal a real, final peace: in treaty-speak, *end of conflict*. Whatever the complexities of putting an agreement into practice, given all the suffering and bloodshed endured by both sides, we would have crossed a point of no return.

There would be two states, for two peoples.

And if we failed? I knew, if only from months of increasingly stark intelligence reports, that an explosion of Palestinian violence – not just with stones or bottles this time, but with guns and explosives – would be only a matter of time.

I knew something else as well. This would be a moment of truth not just for me. Or for Bill Clinton, a man who understood our conflict more deeply, and was more determined to help us end it, than any other president before him. It was a moment of truth for the leader of the Palestinians, Yasir Arafat.

The Oslo Accords of 1993, groundbreaking though they were, had created a peace *process*, not peace. Over the past few years, that process had been lurching from crisis to crisis. Political support for negotiations was fraying. And yet the core issues of our conflict had not been resolved. In fact, they had hardly been talked about. The reason for this was no secret. For both sides, these questions lay at the heart of everything we'd been saying for years, to the world and to ourselves, about the roots of the conflict and the minimum terms we could accept in order to end it. At issue were rival claims on security, final borders, Israeli settlements, Palestinian refugees, and the future of ancient city of Jerusalem. None of these could be resolved without painful, and politically perilous, compromises.

Entering the summit, despite the pressures ahead, I was confident that I, with my team of aides and negotiators, would do our part to make such a final peace agreement possible. Nor did I doubt that President Clinton, whom I had come to view not just as a diplomatic partner but a friend, would rise to the occasion.

But as for Arafat? There was simply no way of knowing.

That was why I had pressed President Clinton so hard to convene the summit. That was why, despite the misgivings of some of his closest advisers, he had taken the plunge. We both knew that the so-called "final-status issues" –

the substance of any real peace – could not simply be put off forever. Untangling them was getting harder, not easier. And we realised that only in an environment like Camp David – a "pressure cooker" was how I described it to Clinton, and to US Secretary of State Madeleine Albright – would we ever discover whether a peace deal could in fact be done.

Now, we knew.

* * *

Israel's equivalent of Air Force One, perhaps in a nod to our country's pioneering early years, was an almost prehistoric Boeing 707. It was waiting on the runway at Andrews Air Force Base outside Washington to ferry me and the rest of our negotiating team back home.

It contained a low-rent equivalent of the American version's presidential cabin, and a few 1960s-vintage first-class seats, but consisted mostly of two long lines of coach seats, three abreast, separated by an almost tightrope-narrow aisle. I dare say I was alone in finding an odd sense of comfort in boarding the plane. This museum piece of an aircraft was part of my past. It was the same model of 707 for which I, with a couple of other young soldiers and engineers, had come up with what we dubbed the "submarine door" system outside the cockpit – to protect El Al pilots from future attacks after one of its planes had been hijacked to Algiers in the summer of 1968. It was also the same kind of plane – a Sabena flight, hijacked to Tel Aviv's Ben-Gurion Airport – which I stormed, before sunrise, four years later with a force of nearly two dozen *Matkal* commandos. The shooting was over within 90 seconds. One of my men – a junior officer named Bibi Netanyahu – was wounded. By one of our own bullets. But we managed to kill two of the heavily armed hijackers, capture the others, and free all 90 passengers unharmed.

Still, even I had to accept, it was no fun to fly on.

As we banked eastward after takeoff and headed out over the Atlantic, the mood on board was sober. Huddling with the inner core of my negotiating team – my policy co-ordinator Gilad Sher, security aide Danny Yatom and Foreign Minister Shlomo Ben-Ami – I could see that the way the summit ended had hit them hard. It was probably true, as all three often reminded me, that the greatest pressure fell on me. I was the one who ultimately decided what we could, or should, offer in search of a true peace with the Palestinians. I was the one who would be blamed by the inevitable critics, whether for going too far or not far enough, or simply for the fact the deal had eluded us. I knew the drill: the same thing had happened when I had come tantalizingly close to finalizing a peace deal with Syria's then-dying dictator, Hafez al-Assad, a few months earlier. Yet these three dedicated men – Gili, who was by training a lawyer; Shlomo, an academic; and Danny, a former Mossad chief – had just been through dozens of hours of intricately detailed talks with each of Arafat's top negotiators at Camp David, not to mention the dozens of other meetings before we had even got there. Now they had to accept that, even with the lid of the pressure cooker bolted down tight, we had fallen short of getting the peace agreement which each of us knew had been within touching distance.

I don't think that even they could be described as depressed. On our side, after all, we knew we had given ground on every issue we possibly could, without facing full-scale political rebellion at home. We had proposed an Israeli pullout from nearly all of the West Bank and Gaza. A support mechanism for helping compensate tens of thousands of Palestinian refugees from the serial Arab-Israeli conflicts of the past half-century. And most painfully and controversially – my rivals and critics back home were already accusing me of "treachery" – we had agreed to let President Clinton present a proposal for the Palestinians to get sovereignty over the Arab neighbourhoods of Jerusalem as well as "custodial sovereignty" over the Haram al-Sharif, the mosque complex perched above the Western Wall, the holiest site in Judaism.

But precisely because we had been ready to offer so much, only for Arafat to reject it all, even as a *basis* for talks on a final deal, I could sense how gutted my key negotiators were feeling.

Still, I'm sure none of them was surprised when my own old operational instincts kicked in. In my statement to journalists, I had been careful to say that Arafat was not ready *at this time* to make the historic compromises needed for peace. But before parting with President Clinton and Secretary Albright, I'd been more forthright. It was clear, without my saying so, that the chances of our getting a peace agreement on Clinton's watch were now pretty much over. He had barely five months left in office. Yet my deeper fear was that with Arafat having brushed aside an offer that went far further than any other Israeli had proposed – far further than the Americans, themselves, had expected from Israel – the prospects for peace would be set back for years. Perhaps, I said, for two decades.

The challenge now, I told my exhausted team, was to make sure we were prepared for this new reality. Part of the spadework was already in place. Much as I'd hoped that Arafat and I could turn a new page in Middle East history, I had directed our army chief-of-staff, nine months before the summit, to draw up contingency plans for the likelihood of an unprecedentedly deadly eruption of Palestinian violence if we were to fail.

Now, I felt we had to go even further, and to prepare a proactive alternative to the negotiated deal we'd been unable to secure. I proposed considering a *unilateral* Israeli pullout from the West Bank and Gaza. The territorial terms would, necessarily, be less far-reaching than the proposal Arafat had rejected. But I felt we should still withdraw from the great majority of the land we had captured in 1967, still leaving the Palestinians an area which the outside world would recognize as wholly sufficient for them to establish a viable, successful state.

And crucially, this would finally give Israel, *our* country, a delineated, final border with the territory captured in the Six-Day War.

Gili, clearly uneasy about accepting the idea that the chances for a negotiated peace were definitively gone, left to try to get some sleep on the long flight ahead. Danny and Shlomo Ben-Ami as well. Within an hour or so, the plane was full of irregularly slumped bodies, the silence broken only by the drone of the 707's engines and the occasional sound of snoring.

I sat, wide awake, in one of the seats at the front.

My sleeping habits were another inheritance from *Sayeret Matkal*. During those years, nearly everything of significance which I did had happened after sundown. The commando operations were, of course, set for darkness whenever possible. The element of surprise could mean the difference between success and failure, indeed life and death. But all of my planning, all my *thinking*, tended to happen at night as well. The quiet, and the lack of distractions, helped to discipline my mind. I found that it helped to free my mind as well, sometimes only to discover that it went off in unexpected directions.

It did so now. Perhaps even I was still reluctant to accept that Camp David meant that the opportunity for a transformative deal with Arafat was finished. Yet whatever the reason, I began thinking back to the first time that my path and his had crossed. It was in the spring of 1968, nearly a year after Israel had defeated the armies of our three main Arab enemies – Egypt, Syria and Jordan. Israeli forces were advancing on a Jordanian town called Karameh, across the